BULLETIN OF THE

TAYLOR SOCIETY

AN INTERNATIONAL SOCIETY TO PROMOTE THE SCIENCE
AND THE ART OF ADMINISTRATION AND OF MANAGEMENT

From the Spring Meeting:

Papers on General Administration,
Sales, Production,
Industrial Relations
Other Features

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The objects of this Society are, through research, discussion, publication and other appropriate means:

1. To secure—for the common benefit of the community, the worker, the manager and the employer—understanding and intelligent direction of the principles of administration and management which govern organized effort for accomplishing industrial and other social purposes.

2. To secure the gradual elimination of unnecessary effort and of unduly burdensome toil in the accomplishment of the work of the world.

3. To promote the scientific study and teaching of the principles governing organized effort, and of the mechanisms of their adaptations and application under varying and changing conditions.

4. To promote general recognition of the fact that the evaluation and application of these principles and mechanisms are the mutual concern of the community, the worker, the manager and the employer.

5. To inspire in labor, manager and employer a constant adherence to the highest ethical conception of their individual and collective responsibility.

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Comment

NO MATTER what the reader's particular interest may be, he should give a thoughtful reading to all of the excellent papers in this issue. Especially we call attention to the paper on organization for general administrative control, for every department is involved in that organization—is in fact a part of the lengthened shadow of general administration.

SOME may question the vital interest of departmental executives in the problems of other departments and of general administration. It may be asserted that if the latter has properly determined the task of the organization as a whole, and has broken this down into defined departmental tasks, then all a department has to do is to attend to its defined responsibility. Its results should automatically dovetail into those of the other departments and all together precisely equal the master task. One may cite in support of this assertion the good principle of separation of planning from execution.

BUT this principle of specialization has reference primarily to functions and only secondarily to persons. The function of planning should be separated from the function of execution. And in many instances persons concerned with planning should have no concern with execution, and *vice versa.* But there are instances in which persons must have a principal concern with one of the functions and an essential incidental concern with the other. Among these persons are major department executives. In the first place, they are concerned primarily with an execution which, encumbered as it is with variables which the master plan could not foresee, must be conducted in the light of the general objective and of the situations in other departments. In the second place, when determining the master task a wise general administration will call major department heads into consultation. The latter become for the time being a vital part of general administration. Therefore the department head must have the perspective of general administration. He must be informed concerning all phases of management, and especially that of general administration.

General Administrative Organization and Control[1]

The Principles and Practices of a Textile Enterprise Realizing a Noteworthy Growth and Success

By **FREDERICK L. LAMSON**
Assistant to the President, The Kendall Company, Boston, Mass.

I

SCIENTIFIC management began with the shop. Its objective was the finding of all the facts on each job, intelligent analysis and interpretation, and effective application to the solution of manufacturing problems. It completed its objective with each job. It put its units of finished work together in a united and complete whole. Its contribution to industry has won from the world the appellation "excellent."

The problems of administrative organization and control involve many intangible elements, such as human behavior and motivation, aims and purposes, objectives and goals. These problems have been and are now placing upon scientific management a new and heavier demand. The scientific method of solution of such problems was indicated by Taylor when he wrote:

"We are now but on the threshold of the coming era of true co-operation. . . . All great things will be done by the co-operation of many men in which each man performs that function for which he is best suited, each man preserves his own individuality and is supreme in his particular function. . . . and yet is controlled by and must work harmoniously with many other men."

The friends and disciples of Taylor, those who believed in him, caught his vision and were inspired by his ideals, are carrying on and are approaching the accomplishment in the broader field of administrative organization of what has been so well done in the field of production. The facts of the intangibles are being ascertained, described and evaluated, thus furnishing workable tools for creative leadership.

Under the constructive leadership of Henry P. Kendall, the president of The Kendall Company, who is president also of the Taylor Society, a plan of administrative organization and control was conceived and developed in order that the ideals or objectives for which we are striving might more effectively become realities, and that a closer approach might be made in the upper strata in management to that which has been so successfully accomplished under the Taylor System in factory management.

This plan is in successful operation. We believe it is concomitant with all that the principles of scientific management imply, and is one further evidence that we are nearing the goal which the industries of the civilized world require and have just reason to expect will be reached.

The story of The Kendall Company plan and its development will constitute my discussion of the subject "General Administrative Organization and Control."

1. *Definition of Administrative Organization.* The function of administrative organization and control is to marshall and integrate the known facts of psychology and economics for the utilization and correlation of the human and material resources of a given enterprise in a way which will most effectively:

a. Promote its continuance and sound development from an economic standpoint.

b. Contribute to the development and welfare (physical, mental, spiritual, material and social) of the individuals directly connected with it or within the sphere of its influence.

c. Promote social welfare by rendering a needed service with the maximum economy of material and effort.

2. *Basic Principles and Factors in Administration and Control.* Analysis of plans of administrative organization and control which have been developed by various successful enterprises shows that however much these plans may vary in detail (and they do vary widely) they are based upon the cor-

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[1] Paper presented before a meeting of the Taylor Society, Columbus, Ohio, May 1, 1930.

rect application to a given situation of a relatively few basic principles and factors. Such plans embody in all instances several, and in rare cases all, of the following elements: (1) constructive leadership; (2) the development and application of sound policies; (3) recognition and varied application of research; (4) intelligent selection and utilization of executive personnel; (5) emphasis upon the training function; (6) definition and development of responsibility; (7) effective motivation of the organization; (8) means for measuring actual results against well set standards.

These factors react upon and are reacted upon by the organization plan.

Constructive leadership is the keystone of the organization arch. Potential and actual capacity for leadership of this type must be present in any organization which aspires to large success economically, or in the broader sphere of social usefulness.

What is not so obvious is that the type of general administrative organization found in any particular business is not only a reflection of the capacity, or lack of capacity, for constructive leadership which exists in that business, but the type in use determines to a great extent the degree to which such capacity may realize itself.

If the plan of organization is such that the aims as expressed in the enunciated policies of the business can be carried out by executives of adequate ability and experience, soundly motivated and working within well defined lines of responsibility, the chief executive and his associates, freed from the pressure of daily operating detail, but secure in the adequate control which sound organization makes possible, will be able to bring to bear all of their capacity for leadership.

In the field of planning and policy there are two broad functions which must be performed in any business—first, the making of plans and policies to fit the exigencies of a particular situation, and second, the successful execution of these plans and policies. When these two functions are confused, as they too often are, so that neither is well performed, this is usually due to bad organization, not to the fault of individuals.

In a similar way, it would be possible to analyze the interaction between each of the factors I have mentioned, and the organization plan in use, but time limitations make it desirable to proceed immediately to a description of the way in which The Kendall Company has built its organization structure on these foundations, and to follow this by a summary of the results of this plan as we see them.

II

The Organization Plan of The Kendall Company

It has been well said that any institution or organization is but the lengthened shadow of a man.

To explain clearly the present organization plan of The Kendall Company and its operation—why this plan was developed and how it works—I will first outline the fundamental concepts and ideals of the founder and present head of The Kendall Company, Henry P. Kendall, and sketch briefly the historical background without which it is difficult to grasp the essential significance of any evolutionary development, such as our present organization plan.

1. *Underlying Purposes and Objectives.* The history of the company covers a period of more than a quarter of a century, dating back to 1904 when Mr. Kendall at the request of friends took hold of the insolvent Lewis Batting Company at Walpole, Massachusetts. Later known as the Lewis Manufacturing Company, this rejuvenated business became the nucleus of the present group of nine plants. In those early days, the first Kendall unit was a small and struggling business, housed in a few wooden buildings, without organization, financial resources or much of anything except problems.

Looking back over the history of the intervening years, it becomes clear that the development of this business has been furthered by intelligent adherence to certain objectives, economic, social and humanitarian.

2. *Economic Objectives.* The textile industry was then made up, as it has to a large extent continued to be made up, of numerous small and relatively weak plants, operated along traditional lines, often with antiquated and inefficient equipment, without specialized skill in either buying, manufacturing, selling or financing. The finished product was sold, as a rule, through commission houses, unbranded.

In this situation Mr. Kendall saw an opportunity for a business which would attain success through:

a. The carefully controlled purchasing of suitable raw materials of high quality.

ORGANIZATION PLAN OF THE KENDALL CO.

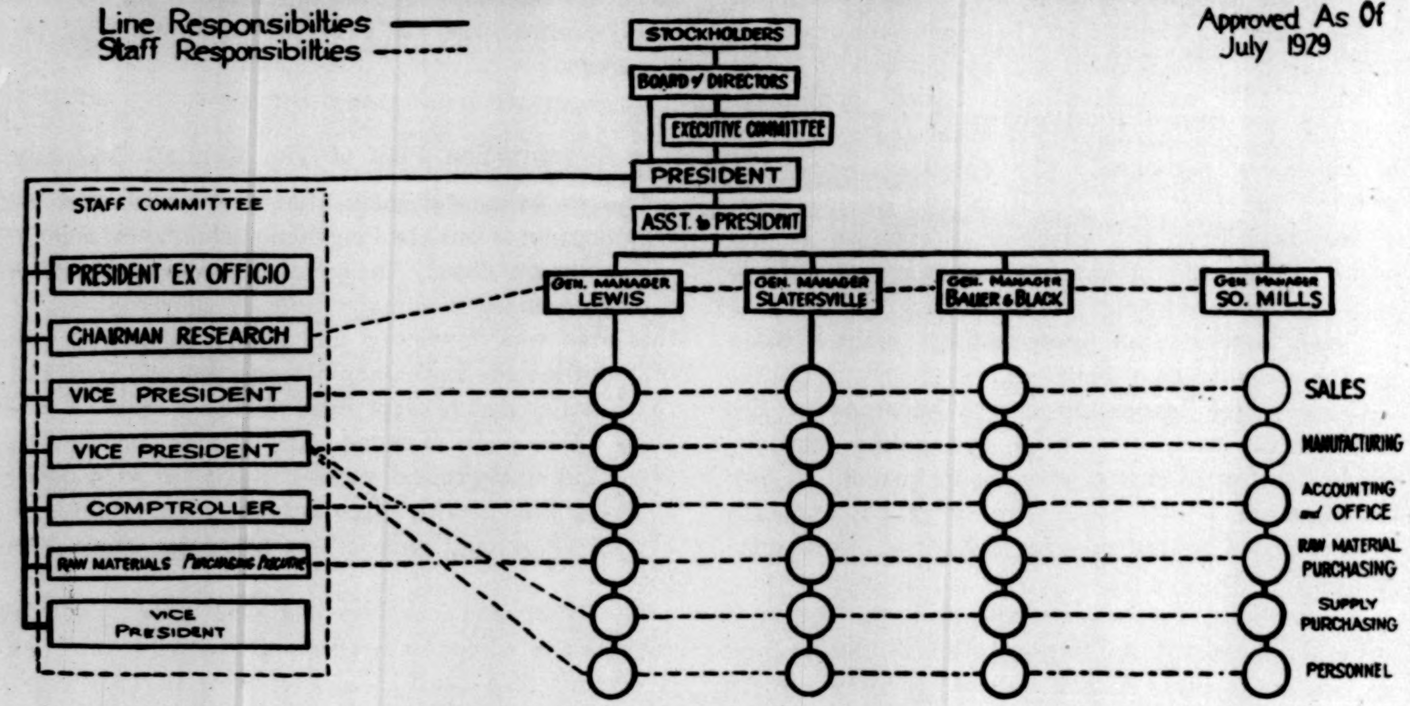

Figure 1

b. The manufacture of these raw materials in well designed, well equipped, well organized plants, with a personnel that is well chosen and adequately paid.

c. The distribution of these finished products, in trademarked or branded form, through the company's own sales organization.

That these economic objectives were sound is shown by the fact that through many vicissitudes of the general economic situation, and in a highly competitive industry, the company grew in size and strength until today these objectives are fully carried out in the nine plants owned or controlled by The Kendall Company.

3. *Social Objectives.* The Kendall Company has been actuated by certain fundamental concepts, motives and desires, developed in common purposes, which have given it its present special character. The main objective inspired by its president has been sound, sane, permanent social betterment and economic well-being, first, within the sphere of its own activity, and second, within the scope of its influence. Wherever this company has contacted, we find happier men—men inspired to do better, perhaps their best; better homes; children better educated, better clothed, better nourished, and all with a continually broadening vision and a keener appreciation and sounder appraisal of the art of living.

The Kendall Company, under Mr. Kendall's management and administration, has demonstrated how the resources of the company, gotten together by foresight, courage and proven judgment, and operated apparently to produce certain textiles, can be exploited successfully for human welfare and economic well-being and for the enrichment of human lives. In organizing and carrying forward this business, our aim is that its resources shall continue to be enlarged and expanded in order that further opportunity for such exploitation may be provided; that the company may demonstrate, further test and establish in practice its ability to harmonize operative methods with the requirements of human nature; and that it may lift the general level of industry by setting forth new ideas of efficiency, even-handed justice and democracy, and by establishing them as realities in a science and art of management.

History of Organization Development

From an organization standpoint, the history of The Kendall Company may be divided into three phases: (1) the pre-organization phase; (2) the loosely-knit organization phase; and (3) the present phase of integrated and defined organization.

The pre-organization phase covered the years from 1904 to 1917. The phase of loosely-knit organization extended from 1917 to 1929, while the present integrated and defined type of organization is about a year old.

1. *Pre-Organization Phase.* The term "pre-organization" needs definition. It covers a period of development through which most businesses pass as they grow from small to larger size, during which the guiding spirit of the business must himself be the organization and not only formulate policies but make and execute most, if not all, executive decisions.

If the chief executive has vision and ability a business under this plan can grow, up to a certain point, at which it becomes necessary to delegate important responsibilities and to develop organization.

In The Kendall Company this first phase extended from the year 1904 to 1917. Meanwhile, the company had experienced a substantial growth. Two additional plants had been acquired—a northern finishing plant in 1915 and a southern cotton mill in 1916.

2. *Loosely-Knit Organization Phase.* By 1917 the size and complexity of the business made it necessary for the chief executive to relieve himself of some of his multifarious responsibilities.

The first step in building a self-sustaining organization was the selection of three experienced executives for the parent plant at Walpole, a sales manager, a works manager and an assistant treasurer, responsible respectively for selling, manufacturing and accounting, financial and office functions.

These men were brought in from the outside, there being no suitable material available within the company. Since that time the organization has largely been built up from the inside, chiefly through the acquisition, training and promotion of young college men, added from year to year.

During this phase, extending from 1917 to 1929, a second southern cotton mill was bought in 1918, a third in 1924, a fourth in 1925 and a fifth in 1926. The purchase in 1928 of Bauer & Black, Chicago surgical dressings house, brought about the necessity for the further development of organization, and marked the close of the intermediate phase.

During this period the parent plant at Walpole was operated by an executive committee consisting of three senior executives, each responsible directly to the president. There was no general manager. The finishing plant at Slatersville was in charge of a general manager, while each of the southern mills had a local manager, also responsible to the president.

It will be seen that under this loosely-knit type of organization:

a. Local authority was relatively weak in most instances.

b. Many executives and functions were directly responsible to the president.

c. There was no well defined staff development.

In spite of certain inherent defects, this type of organization worked well during this intermediate period because of the excellent character and ability of the executives.

3. *Integrated and Defined Organization Phase.* In 1929 a type of organization was developed to meet the needs of an expanded and relatively complicated business comprising nine scattered plants located in six states engaged in several types of manufacture and distribution.

This plan of organization is shown graphically in the organization chart. While the plan was built to fit the special needs of our business, the underlying principles are of general application.

The outstanding feature is the development and correlation of line and staff responsibilities in a manner which permits effective decentralized operation of individual divisions together with the co-ordination of policies and methods essential to the effective direction and operation of the enterprise as a whole.

The nine plants are grouped into four divisions, each in charge of a general manager. The Lewis and Slatersville divisions each has a single plant. Each of the other two divisions consists of a group of plants. The Bauer & Black division comprises a plant at Chicago and one at South Bend, Indiana. The Kendall Mills division includes five cotton mills in North Carolina and South Carolina, in charge of local general managers, each a "shepherd of his people," responsible in turn to the general manager of that division.

Divisional Organization

Each division has a line organization, responsible to the divisional general manager, with executive heads covering the functions of sales, manufacturing, accounting and office work, raw materials purchasing, supply purchasing and personnel. The executives in charge of sales, manufacturing, and accounting and office work, with the general manager, compose an operating committee which holds regular weekly meetings to formulate divisional policies and discuss current problems and the more important departmental or interdepartmental matters. Any matter which is felt to be beyond the scope of the individual division, or in regard to which the division desires further guidance, is referred to the Staff Committee, described later.

The divisional general manager is the co-ordinating and correlating executive. He has the final responsibility for decisions. The Operating Committee serves as a cabinet and advisory body and offers an opportunity for direct personal contact and discussion between the departmental executives and the general manager, who acts as chairman of the meetings. Written reports are prepared and kept on file by members of the Operating Committee as well as by the general executives of the company.

Staff and Functional Responsibilities

While the line organization of the company presents perhaps no very unusual features with the possible exception of the organization and functioning of the Operating Committees, the staff development and the functioning of the staff executives are features that are perhaps new.

The chart shows graphically the organization of the Staff Committee and the general relation of the staff executives to the line organization.

This committee consists of the president, ex-officio; the assistant to the president, who is the chairman of the Staff Committee and its active head; four senior executives who have been associated with the company over a long period and were formerly in charge of operations at the Lewis and Slatersville divisions; and a fifth executive from the Bauer & Black division.

The Staff Committee is the president's cabinet. It is concerned primarily with questions of company policy and development, with interdivisional relations, and with correlating and unifying the aims and activities of the divisions so as to promote the attainment of the broader objectives both of the divisions and of the company as a whole.

The Staff Committee meets on call from the chairman, who schedules matters to be covered. Any member of the committee may also bring up any matter, not on the schedule, which is of interest or importance. The comptroller, who is also secretary of the company, acts as secretary of the committee and prepares a complete written report and digest of all matters covered at each meeting, a copy of which goes to each member of the committee and is preserved for future reference.

The Staff Committee does not take executive action or issue instructions to the divisional general managers or to other executives. Its conclusions are all transmitted to the president in the form of written recommendations. When accepted such recommendations as require executive action are effectuated by the president himself or through the assistant to the president.

Each member of this committee has a functional responsibility for certain activities that are common to all operating divisions. Each covers the field for which he is particularly qualified by experience and training. The chart shows what these activities are and how they are tied in with the divisional organization. In these fields the staff executives work with the operating divisions principally on methods and questions of policy.

The staff executives spend considerable time at the divisions, and give the benefit of their experience, background and ideas to the general managers and their operating executives. In this way policies are unified, the best methods are standardized, and knowledge of and enthusiasm for the general aims and objectives of the company are spread throughout the organization.

The effect of this plan is to make each division self-sufficient and self-supporting from an organization standpoint, while providing a means of co-ordination and control, a basis for concerted common effort, and an avenue for disseminating information and, we believe, inspiration which we have found to be both workable and valuable to the organization.

III

The Organization Plan in Operation

How does it work? That is the pragmatic test of any plan. The plan I have described meets the needs of the situation for which it was designed. It squares with the basic principles of general administrative organization and control which were discussed in the first section of this paper. It facilitates the building and execution of sound policies. It furthers the development of a strong executive personnel of the self-starting type. It promotes the application of Taylor principles in modern form as enunciated by H. S. Person—management research, management standards, management control and co-operation. It measures accomplishment by utilizing accounting and budgetary control. It permits maximum development of the important teaching function of management. It brings out latent abilities by establishing goals, financial incentives and other stimuli. There is in it much that is of wider application to other situations and other businesses.

1. *Promotion of Constructive Leadership.* Early in this paper I called attention to the definite but not always obvious relationship which exists between the development of possible capacity for constructive leadership and the type of organization within which that capacity must function.

It is clear that regardless of the type of organization, no enterprise can realize its best possibilities without top leadership of a high order. Such leadership has been well described by H. S. Person in the following words:

"Leadership is not passive; it is an active, composite ability to induce (not impose) understanding, conviction, desire and action in a manner which leaves no disturbing impression of the mechanics of the induction. Every executive is a leader of a sort, but successfully to achieve a development of scientific management in an enterprise he must be that type known as a creative leader; one under whose leadership 'those purposes and objects will find most ready reception at the hands of those led which can most readily be seen by them to square with their own desires or with desires which they can quite readily and naturally take up as their own.' As leader he must have energy, enthusiasm, imagination, intelligence, technical knowledge, knowledge of human nature, faith in people; and qualifying all of these, a special quality of sympathetic interest toward those led. Not only must he manifest these characteristics in his relations with those major associate executives with whom he has immediate contact, but also he must inspire all of them to desire and learn how to become creative leaders in relations with their immediate associates. The more creative the leadership at the top, the more creative, although of course not uniformly so, will leadership become all along the line."

Such top leadership we have in the head of our company. Our problem, then, is to devise a type of organization and control which will enable that top leadership to realize itself most completely in effective action, and to inspire and enable others throughout the organization to become creative leaders in their own fields and in their relations with their immediate associates.

How does our plan accomplish this?

a. It brings together in the Staff Committee a body of seasoned executives of broad and varied experience, with knowledge not only of this particular business but of the general problems of industry. They have no local or divisional interests to further, and think in terms of the welfare both of the company as a whole and of the individual divisions. Their abilities are complementary, and they have both the willingness and the ability to work in co-operation. By relieving the president of much that he would otherwise have to do, although not, of course, of the responsibility for major final decisions, they give him opportunity for forward-looking, constructive thought, and for transmitting, either personally or through the staff, his ideals and purposes to the rest of the organization.

These things are vital to the continued development and even to the life of any large enterprise in this era.

b. It develops leadership throughout the organization by establishing and defining definite line responsibilities, by selecting the best available material for these positions, by defining the goals and purposes to be attained, and by placing upon the divisional executives responsibility for attaining these goals, but with co-operation from the staff.

c. It provides in the Staff Committee an effective cabinet for the president, while each general manager receives similar support through his Operating Committee.

2. *Policy Development.* Recognition of the importance of the policy-making function was a comparatively late development in corporation history, perhaps because in smaller businesses, and in the early history of any business, the policy-making and the policy-executing functions are often combined in one or at most in a few individuals. Regarding this whole matter, Robert W. Burgess writes:

"The existence of such a thing as general administration may not be recognized by the chief executive of a small concern, whose mind is occupied by particular problems of buying, selling, designing, making, employment or pay adjustment. But in any business which grows past the point where one man can personally make all decisions, it is necessary, first, to cease deciding every issue as a separate special case and to establish normal policies and procedures; and second, to separate the problems of general concern from those pertaining to only one function of the business."

Our plan of organization provides for this.

The general managers and their operating committees settle questions of divisional policy, harmonizing these decisions with the general policies of the company. If the matter requires a new ruling on general company policy, or if it goes beyond the scope of the individual division into the field of interdivisional relations, it is referred by the general manager to the Staff Committee, which is in continuous touch with all the broader phases of company policy and interdivisional relationships with which the divisional general manager has neither the knowledge, time nor opportunity to cope.

Thus the policy problems both of the central company and of the divisions are adequately covered.

3. *The Teaching Function.* In the following words H. S. Person has called attention to the vital importance of the teaching function in scientific management:

"A failure of leadership may be absence of appreciation that the development of scientific management is an *educational* process. The integration of various types of executives, the elimination of old patterns of habit by understanding practice of the new, the adjustment of the controllable and the uncontrollable, the stimulation of common constructive effort in devising the new procedures, and particularly, the gradual development of that understanding and sympathetic appreciation without which all else is impossible, must be the result of truly educational processes. These cannot be achieved by fiat."

Our type of organization offers maximum opportunities for effective educational effort with minimum interference with individual initiative and responsibility. Every executive has a definite place and a definite work, but channels are continuously open through which flow ideals and policies, consolidated experience, the best standard practice, and continual comparison of actualities with objectives. The plan thus concentrates the entire strength of the organization upon the attainment of known and desirable goals.

4. *Accounting and Budgetary Control.* To control and co-ordinate the activities of a business for net profit, administrative organization requires (1) plans or standards, and (2) facts as to actual performance. These plans and facts are expressed in terms of dollars. Our accounting summarizes plans or standards by means of a budget, and facts or actual performance by means of operating statements and balance sheets.

This type of organization makes possible the most effective dynamic use of both budgetary control and constructive accounting, the chart and compass of administrative management.

Each division has its own accounting and cost organization, but receives through the comptroller's office the benefit of technical skill and constructive ability which would not otherwise be available. This results in standardization of progressive methods, and promotes comprehensive analysis of both divisional and overall results.

Before the first of each year, each division prepares and presents to the president and Staff Committee a complete annual budget, broken down by accounting periods of four weeks each. This budget when approved and accepted becomes the measure for the divisional results of the year.

In addition, we are now developing for current operating control a continuous quarterly budget for each division which gives the general manager at the beginning of each accounting period a picture of his probable sales, cost of sales, selling and administrative expense and net profit for each of the three following periods.

Our development of the budget is based upon the primary premise that the fundamental purpose of budgetary control is to foresee probable future results accurately and to control them effectively to attain the budgeted goal.

The annual budget serves as a useful and necessary general measuring stick, while the continuous quarterly budget provides the working tool through which the desired annual results may be attained or approximated.

If the quarterly budget presents an unfavorable picture to the general manager, he is in a position to take effective action *before* and not *after* the fact, to attain the desired result. The three-period span is sufficiently long to permit the general manager to initiate and carry through adjustments in manufacturing and purchasing schedules, reduction in expense or increase in sales pressure, as may be necessary.

Standard costs are a necessary prerequisite to this type of accounting and budgetary control, and are in use in all divisions.

5. *Research.* Our plan recognizes research as a primary company responsibility. This function is assigned to one of the members of the Staff Committee. It ranks with sales, manufacturing, purchasing and control functions. This staff executive, with the assistance of his associates, formulates and correlates the research program of the company, which includes the following: (1) market research, (2) technical research, (3) mechanical research and (4) economic research.

Each division has its own research department, engaged in the solution of problems peculiar to the division. The staff research executive has the same type of responsibility for divisional research as the comptroller, for example, has in regard to divisional accounting, cost and budgetary procedure.

6. *Organization Motivation.* Harmonized motives are what drive the organization forward, and therefore the art and science of motivation must fit into and be furthered by the organization plan.

Our plan meets this test. It promotes and facilitates constructive leadership, both within the divisions and in the central company. It welds the organization into an effective, harmonious unit inspired by worthy ideals and united in common purposes. It affords individuals an opportunity for joyous self-expression, and a constant challenge to accept and successfully carry responsibilities and to develop and advance within the limits of their capacity. It provides in the budget and in the accounting procedure a means for fairly evaluating actual results against accepted standards, and for establishing financial and other incentives for unusual performance.

7. *Flexibility for Expansion.* The final test of the soundness of any organization plan is this—will it provide adequately for the expanding needs of the future as well as for those of the present?

Our plan successfully does this through the flexibility it introduces into general administrative organization and control. The problem in expansion is reduced to that of building competent and self-sustaining local organizations, and of coordinating them with the objectives, plans and policies of the company as a whole by means of the Staff, a central body which requires no change as additional operating units are added.

Through the placing of large local responsibilities new executive talent is continuously being developed for higher positions in the same division, in other divisions, or in the manning of new units.

We have followed the principle, both in the divisions and in the central organization, of building a strong personnel, with adequate understudies. It is our experience that one of the best investments for a growing business is to have a slight excess of promising young executive material.

What is the broader significance of the plan of administrative organization I have described? It is this:

The plan provides not only for progress on the material level, but for the development of individuals and for finer social relationships. These human and social values are dealt with, not vaguely nor theoretically, nor even as ideals to be reached sometime, somewhere, but as practical issues for today, here, in a business organization. In other words, the broad significance of this plan is not its significance as a clever tool, but its significance as an instrument for individual and social upbuilding. That significance has important implications; for we should remember that the industrial system, based on private property and individual initiative, is under attack, notably in Russia, and that even in our country, violent fluctuations in the economic level, lack of co-ordination between supply and demand, unemployment and other symptoms furnish food for grave reflection as to the soundness of the basic economic organization.

We do not maintain that our plan is perfect or final, but we believe it is a constructive contribution to the solution of a large and vital problem. With Count Keyserling, we feel that "the ambition to frame the last word never indicates anything but narrowness. As long as mankind lives, the absolutely last word will never be uttered; for ever and ever the problem of mankind will present itself anew, and life will forever remain a thing of problems."

It is our creed that the fullest and happiest mode of business life is attained by a continuous and never-ceasing effort to contribute to the solution of this "problem of mankind" by finding ways to shed the light of intelligence on the dark spots of industry; by seeking new light and developing courage to follow the lighted way; by creating new ideals to strive for; by seeking the best way of doing things; and by bringing our industrial conduct into harmony with the finest aspirations of men.

Discussion

Morris L. Cooke.[2] Our technical societies seldom get as intimate a view of interesting and important industrial experiments as we have had of The Kendall Company—first from Mr. Kendall's paper of a year or two back and now from Mr. Lamson.

In reading this paper I was struck with the parallel between shop operations and organization work. Definition of process is always a prerequisite to standardization. I am not quite in sympathy with the author's assumption, however, that things are always so obvious about shop processes. I believe there are intangibles all along the line from the simplest shop operation up to the combination of top executives.

I am in a position to sense the time factor in all of this more than some of you perhaps because I have known Mr. Kendall since 1909 and have followed his career ever since. He has been a particularly hard-working, forceful and intensive executive who has got a tremendous kick out of his work. (He has only recently taken up golf!) When we hear of the marvelous results being achieved after but a few months of effort by the more usual type of American executive I think we may conclude that God has been very good to at least some of them.

Mr. Kendall was fortunate not only in his native abilities but also in the number of different businesses with which he was associated early in his career. Back in 1908 he was in the book business, the foundry business, the book cloth business and the textile business He may have had interests in other enterprises. At any rate he shows the results of having had intimate, responsible contact early in life with a number of different businesses and these contacts gave him, right from the start, a breadth of vision that he might not otherwise have had.

One of the best sides of Mr. Kendall has been his willingness to train men in his organization. When I first knew him he had just taken a man out of his shipping department and tagged him as a man he was going to stay with. This man came of good American stock but he had had no college education. One of the first things Mr. Kendall did was to send him over to the newly opened School of Business Administration at Harvard. The man's reaction to his course of lectures was that each man interpreted success in the light of his own experience. There was nothing fundamental about it. He went back to Mr. Kendall with the feeling that he wanted to tie up with a man who really had confidence in the philosophical approach to industry. When Kendall was still a very young man he had already demonstrated his confidence in fundamental thinking and doing.

Mr. Lamson and I, knowing Mr. Kendall as we do, could hardly avoid emphasizing the importance of the top man in this organization. I believe, however, that we American industrialists are going to have to get away from this emphasis on business as the lengthened shadow of one man. I believe in industrial leadership. But I believe also that we must more and more pave the way for the authoritative leadership of many individuals in an organization of this kind. We must get out of the way of constantly patting one man on the back and saying that everything good comes from him. I know Mr. Lamson and a great many other men in Mr. Kendall's organization and in my opinion this organization is carrying out this idea.

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[2] Consulting Engineer, Philadelphia, Pa.

Taylor's idea of a partnership expresses what our attitude should be. He believed that two partners should allocate between themselves the things on which each was to have the final authority and then, when the time came to act, each man should make his own decisions. It works largely this way in the Kendall mills and I believe it will in any fundamentally organized establishment. If it does we shall be able to spread the credit down the line and let people with special responsibilities reach decisions. Those of you who remember Miss Follett's excellent paper, "The Illusion of Final Authority,"[3] which was presented before this Society some years ago, will have a further understanding of what I mean by this.

There is a point in this connection that I think increasingly important for Americans to emphasize. What are the top men in our huge business organizations getting out of life? They are usually driven like machines; and they are not always thinking machines. If American industry cannot so reorganize itself that the men who hold important positions can be good members of their families and of society, accepting as well their fair share of public responsibility as citizens, it will be a particularly unfortunate thing. We cannot make machines of people at any level and at the same time get from them what their environment expects. Nor is it safe to separate industry from life. History teaches that a forced and artificial mode of living usually breeds disaster.

Mr. Lamson might have given greater emphasis to the care that has been exercised over a long period of years in the Kendall organization in adhering to predetermined standards in choosing men. I have had the pleasure in the last three months of recommending three men to the Kendall organization. One of them was a candidate for a very subordinate job and the other two for higher ones. Even the youngster was subjected to interview by a number of people before he was chosen.

Mr. Lamson mentioned the word "loyalty." I wish to add that the loyalty to which he refers is quite different from that which we see so constantly referred to in other industrial organizations. It grows out of a commonly shared reliance on facts and on defined policies, as contrasted with expediency. There is no harm in the fact that there is in addition that personal loyalty that men who have worked pleasantly together build up for each other.

I have been impressed over a number of years with the way in which the men in the Kendall organization have been self-disciplined and disciplined by the organization to the point where they do not need Mr. Kendall or someone at the top to tell them what they have to do. On the other hand everyone in the organization is approachable on matters that come within his province. I think it is one of the most serious accusations that can be brought against an executive when he cannot be reached either by his own people or by people on the outside who have good reason to reach him.

I have been in Italy, Russia and other countries outside the United States in the last few years and know that our system is being challenged. We must meet the challenge by more democracy.

This paper shows the value of one outstanding example of excellent management, as contrasted with the codified results of a whole lot of plans. Taylor liked the influence of the outstanding example. We owe a very great debt of gratitude to Mr. Kendall and his associates, and to Dr. Person, who was influential in getting them to expose themselves, for giving us this story.

King Hathaway.[4] In spite of the fullness of tribute that has been paid to Mr. Lamson and his paper, and to Mr. Kendall and the great work they have been doing, I feel that I should add my own. Mr. Cooke in his discussion of this paper and his references to Mr. Kendall was too modest to take any credit. I am not so modest. To me this demonstration—and it is a demonstration rather than an experiment—is one of the most gratifying things that I have experienced during the years that I have been identified with the scientific management movement.

Mr. Kendall is very generous in frankly attributing the success that he has had in this undertaking, first, to his contact with Taylor, and second, to his contact with those of us who worked with him during the period when he was learning scientific management and during the period in which we were working out the earlier adaptations of the Taylor System to industries other than the metal working trades.

This demonstration points the way to a continuance of America's industrial, social and economic supremacy. It is a valuable object lesson. In America, taking us generally, we are self-satisfied and complacent. We have enjoyed prosperity far beyond perhaps that of any other nation. This has been largely due to the general adoption of better management throughout our industries. But, with the exception of the mass production industries, the average of American management today falls far short of the standard of organization and accomplishment of the Kendall group.

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[3] *Bulletin of the Taylor Society,* Volume XI, No. 6, December, 1926, p. 243.

[4] Manning, Maxwell & Moore, Inc., New York, N. Y.

Since I got back from my sojourn on the west coast and my trip around the world, I have visited plants that are regarded as successful, that are making money and are pretty well satisfied with their management. They think they are applying scientific management. They have what they call a planning department. They have what they call a staff organization. And they have what they call method study or time study. But it is certainly not more than 50 per cent of what it should be either in form or in accomplishment.

There has spread from the early work of Taylor and his associates a smattering in the way of understanding of the principles of scientific management and its technique. This has been accompanied by what might almost be called a contempt of the details of the mechanisms or the ways and means for applying the principles. There has likewise been lack of understanding of the principles. And yet, as a result largely of that smattering of understanding and imperfect application of the principles of scientific management, we have attained and maintained a prosperity, a standard of living, a social standard that is beyond that of any other country.

Now, if we are going to be satisfied with that we are riding for a fall, because some of the other countries of the world are not standing still. I spent last year several very pleasant and interesting months in Japan. Japan is a very young country industrially. They have many problems, but they are working intelligently, faithfully and industriously toward their solution. These problems have mainly to do with the development of markets and the development of industry, in which the Japanese recognize scientific management as being an important means to the end. Already Japan has some industries which compare favorably with our best in point of management and efficiency. The same thing is going on in many of the countries of Europe.

I think that the Taylor Society should try to get across to American industry the message that it must wake up; it must become dissatisfied with the superficial application of the principles of scientific management, the complacent ignorance of not only principles of scientific management and of organization as set forth by the speaker this morning, but with ignorance of such simple matters as the technique of scientific management.

One reason for this situation is that the men at the head of American industries, the captains of industry, the general managers, the heads of financial institutions, have not been willing to take the time or the trouble to learn what scientific management really is. They are willing to assume knowledge of it which they do not possess.

One of the reasons for Mr. Kendall's success is the fact that the man at the head of it knows scientific management—not vaguely or superficially, but intimately; he knows all of the technique of scientific management as well as its principles.

Now if we can get men at the heads of industries to take the same trouble to study scientific management, to learn the Taylor System, as have Mr. Kendall and those associated with him, I think America has a bright future. Otherwise I am inclined to think that some of our neighbors on the other side of the ocean, either side of the United States, may give us a pretty hard run for our money.

Lawrence C. Haaser.[8] I deem it a pleasure and compliment to have been asked to comment on Mr. Lamson's paper. My experience has been in the ranks and it is out of that experience only that I can contribute.

At one time I was employed in an executive capacity for a very prosperous concern whose owners, partners, were rated as millionaires. One of these individuals, like myself, had started in at a dollar a day polishing shears and cutlery. He was industrious and a thorough student and had finally become the president of a labor union in the locality. When a strike was called by his union, he went out with the rest and, as so often happens, when the strike was over, he was unable to secure a job in the small community. He therefore went to Newark, New Jersey, and worked for awhile at his trade. While there, he developed and patented his idea for making manicure nail files and started an industry at Fremont. He associated with himself another gentleman, and they made a financial success of the business. In the course of time, however, they were "pushed" out by the financial interests. This is a sad story. The reasons, however, were these, which were very evident: (1) the lack of development of the science of management in the organization; (2) the lack of intimate and friendly co-operation between the management and men and (3) no definite plan of perpetuating the business other than to create personal wealth. Even though, as already stated, this man had grown from the ranks and had been president of a labor union, he had lost his contact as he moved up. It had become difficult for his employes to reach him. Unconsciously a lot of "red tape" was set up as a barrier between them.

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[8] Comptroller, The Ohio Locomotive Crane Company, Bucyrus, Ohio.

In contrast, the men in the organization with whom I have come in contact in the furniture industry have had a definite purpose in mind. The man with whom I am at present associated would make a good half-brother of Mr. Kendall. He is not in the business merely to make a lot of money for himself but for the purpose of perpetuating the business, and is well aware of its possibilities. He associates himself with men who can keep him posted as to present trends and the result is that he has a good business that fortunately has not been affected by the present slump. Last March, when men were being threatened with the loss of their jobs, he raised the wage of every man in the organization. He realized that it was good business to take money from the man who has it and put it back in the industry whence it came.

The organization chart as set forth here by Mr. Lamson is very complete and interesting and serves as a model for us, to be sure. At the present time we are exerting our efforts in establishing a well defined organization, a well established line of authorized organization of our foremen, that has proved to be a great benefit. At the last meeting of our Foremen's Club, we were addressed by a gentleman from the Ohio Brass Company. He stated that his organization has no secrets, that they distribute all the information they have, including financial statements, to their employes. We do not go quite this far but we do believe management's business is to make good and a profit.

H. S. Person.[6] I should like to ask Mr. Lamson two questions. First, how has this general organization of policy and industrial responsibility worked out during the strike in the South? And second, is there provision for horizontal as well as vertical contacts below the level of general administrative control?

Frederick L. Lamson. When the strike situation developed in the South Mr. Kendall called his employes together and asked them what they wanted to do. The strike was the result of an objection to one man's handling as many as sixty-four looms. Our men were handling 120. He said to them, "If you feel you must go out, go. We won't throw you out of your houses if you decide to go out. Stay in them. But take time to think and talk the whole matter over." The result was that in five mills only three employes voted in favor of striking. All the rest voted against it. Our mills ran night and day all through the strike.

As to the other question, the sales managers meet with the factory managers; the general managers meet with each other; the foremen get together, but most important of all, Mr. Kendall meets with all of them. Self-expression all along the line is encouraged. Mr. Kendall recently met with all the southern mill managers and foremen in an effort to bring hours down to a level with those in other industries. He was not completely successful as some of you know who have read in the papers the reception which his proposition to the President received. We were successful, however, in cutting hours twenty-eight hours per week. The night and day shifts now run 105 hours per week and the operators are paid exactly the same wage as they were paid before the reduction.

Frank R. Goodell.[7] Having spent some of my youth in the wide place in the road between North and South Carolina, I am interested in the question of child labor in the South. I have wondered what Mr. Kendall has been able to accomplish in reducing child labor in his mills.

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[6] Managing Director, Taylor Society, New York, N. Y.

[7] Anderson, Davis & Hyde, Inc., New York, N. Y.

Frederick L. Lamson. We employ no children at night and use them only occasionally in the daytime. And in general we employ no women. Competition and certain family conditions have forced us to use some. We use some minors under eighteen years of age on certain jobs. We plan eventually to use no children and to use women only on operations at which they are more competent and to which there is very little strain attached. If our competitors would come into line we could do away with these evils immediately.

Merritt B. Lum.[8] Do you see a result in the South of these demonstrations of Mr. Kendall's? Are other plants realizing the significance of them and attempting to apply the same methods?

Frederick L. Lamson. I can perhaps answer that question best by repeating two stories. One of our competitors told me: "We have got to get in line, Mr. Lamson, because you are getting all the good help and we are getting the poor. The people who live in your houses would not live in mine." Another mill thought it would be a good idea to seek advice from their employes as to what they could do to increase production. One of their employes wrote on the questionnaire that was sent around, "Turn the mill over to Kendall to run."

George D. Babcock.[9] May I add my comment to the last question? I have lived in North Carolina for two years and have been deeply interested in observing industrial developments. What Mr. Kendall is doing is impressing the South. His paper presented before an Atlanta meeting was reprinted in all the important southern papers. Editorials commented generally favorably upon it. I see much of the southern local press and know that Mr. Kendall's activities are very frequently mentioned.

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[8] Marketing Counselor, Chicago, Ill.

[9] Manufacturing Engineer, Chunn's Cove, Asheville, N. C.

Industrial Code Committee

THE following members have accepted the invitation of President Kendall to serve on an Industrial Code Committee which will render a report at the annual meeting which will be held in New York early in December:

Henry Bruere, First Vice-President, Bowery Savings Bank, New York, and Director Rock Island Railroad; John M. Carmody, Editor, *Factory and Industrial Management,* McGraw-Hill Publishing Co., Chicago, and President Society of Industrial Engineers; Morris L. Cooke (Chairman), Consulting Engineer, Philadelphia; Gustave Geiges, Personnel Director, Gotham Silk Hosiery Co., Inc., Philadelphia, and Past-President, American Federation of Full-Fashioned Hosiery Workers; Lillian M. Gilbreth (Mrs.), President and Treasurer, Gilbreth, Inc., Montclair, N. J.; Francis Goodell, Industrial Engineer, Naumkeag Steam Cotton Co., Salem, Mass.; Willard E. Hotchkiss, Dean, Graduate School of Business, Stanford University, Stanford University, Cal.; Gorton James, Editor, *Business Week,* McGraw-Hill Publishing Co., New York; Florence Kelly (Mrs.), General Secretary, National Consumers League, New York; Frederick L. Lamson, Assistant to the President, The Kendall Company, Boston; Morris E. Leeds, President, Leeds & Northrup Co., Philadelphia; L. C. Marshall, Professor in the Institute for the Study of Law, The Johns Hopkins University, Baltimore, and formerly Dean, College of Commerce and Administration, University of Chicago, Chicago; H. V. R. Scheel, Vice-President, Botany Consolidated Mills, Inc., New York; F. A. Silcox, Director Industrial Relations, New York Employing Printers Association, Inc., New York; Francis Lee Stuart, Consulting Engineer, New York, and formerly Chief Engineer, Baltimore & Ohio Railroad; Mary van Kleeck, Director, Department of Industrial Studies, Russell Sage Foundation, New York; Joseph H. Willits, Professor of Industry, Wharton School of Finance and Commerce, University of Pennsylvania, Philadelphia; Robert B. Wolf, Consulting Engineer, Wolf & Hill, and President, Pulp Bleaching Corp., New York.

The Major Sales Problems of 1930[1]

An Analysis of the Merchandising Problems of the Decade Now Beginning

By **FRANK R. GOODELL**
Partner, Anderson, Davis & Hyde, Inc., New York

THE CHIEF difficulty in making a collective analysis of current sales problems is the fact that they are so desperately miscellaneous. The natural objective is to find common denominators which are representative of the general marketing situations, but this is not easy because of the wide diversity in the sales problems of the individual. In preparing this paper I have selected case examples from a variety of industries. The object will not be to relate one problem to another but to establish the relatively few sources from which they spring.

Sales problems, like the poor, we have always with us. Throughout a period ranging from 1908 to 1925 when my work was exclusively in selling or sales management, I cannot recall a time when we did not *think* we had major problems. And as I look back, not the least of them was to keep the customer's good-will in those periods when the factory could not fill his orders.

It seems a far cry from those days of almost unappeasable demand to these days of overabundance. And if the sales problems of those simpler days were matters of ordinary routine, certainly those of today have become intensely intricate and imperative. In fact, the job of profitably distributing our normal production is now the most baffling and elusive factor in business.

The amazing progress made in other departments of industry has served to throw marketing into bold relief and to greatly magnify its importance.

Our leading enterprises have clearly gained a mastery of corporate finance and control. They have acquired surpassing efficiency in production. Guesswork has been supplanted by controlled operations in budgeting and buying. Much has been done to reduce the former hazards of business. And yet, from the standpoint of assured profits, these elements have little value when volume expectancy is not made good. The sales problem is proverbially the "X" in the equation. And despite an improvement in forecasting, sales will probably continue to be an "X" in the business program. But we may congratulate ourselves that the presence of an "X" in an equation represents the first forward step toward its solution.

In considering the sales problems of 1930 we see them first as surface manifestations of underlying economic forces. They are characteristics of the basic developments and trends in which they are rooted. As a step in getting closer to the substance of the major problems let us briefly review the background of what we might call the Drama of 1930. It is a play in four acts and a Prologue to which we arrive just after the curtain has fallen on the first act.

During the intermission we have an opportunity to review the action which has taken place. It is appropriate that we should start with the Prologue because it prepares us for the plot which is now unfolding. The Prologue takes us back ten years when the walls of America's post-war prosperity were as imposing as those of Jericho.

Within a few months they had crumbled into dust before the trumpet blast of forced deflation. Manufacturers began to talk of new and fearful things—buyers' strikes, buyers' market and hand-to-mouth buying. Agriculturists saw the towering values of land and crops quickly swept away. Security holders saw substantial equities obliterated with the suddenness of an explosion. And finally the consumer who had gone on a buying strike lost whatever initiative he enjoyed by a drastic reduction in his purchasing power.

It is doubtful if the industrial history of any nation has ever witnessed such a rapid plunge from the heights of prosperity to the depths of commercial chaos. And yet, within two years, such is the recuperative power of a resourceful people, the foundations were laid for a new and greater prosperity. An upward march was resumed which, with minor interruptions, was maintained for eight years. During 1923 business activity equalled the peak established in 1919. In 1924 a sharp but short-lived reaction occurred. In 1925 and 1926 business activity ranged consistently above the normal trend. The moderate reaction which occupied most of 1927 actually carried business below normal for the first time since 1924, yet so gradually as to cause no profound disturbance. Recovering from the dullness of 1927, the year 1928 developed a sparkling tempo which carried over into 1929 with a sweeping crescendo. By July the peak of business activity was reached, followed by an easing off which became increasingly apparent from month to month. In the last quarter, general business passed below the normal trend. At this moment, its downward path was emphasized and accelerated by a disastrous drop in security prices.

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[1] Paper presented before a meeting of the Taylor Society, Columbus, Ohio, May 1, 1930.

And so the Prologue ends with a strong implication that Prosperity, the Hero of the Industrial Drama, has met with foul treatment off-stage. Now for the first act.

The curtain rose on the sober and questioning note of a post-panic depression. The Prologue made it clear that the Drama of 1930 would not be comedy. On the contrary, many in the audience were expecting tragedy. However, the attitude of the seasonal reviewer seemed to indicate that we were to witness neither comedy nor tragedy but a mystery play. In such a drama the plot is never obvious, the audience being kept in continual suspense up to the very last act. Certainly the first act has been in keeping with this assumption. However, like the first acts of most mystery plays, it has done less toward advancing the plot than it has in defining and registering the characters in the play.

These characters are, of course, the old reliables of other years, but the element of mystery is sustained because of their altered appearance and their assumption of new roles.

Take Money, for instance. In 1907 and again in 1920 this character assumed the sinister balefulness of a Shylock. As now played, Money is a benevolent old gentleman dispensing the largess of cheap loans from a Horn of Plenty.

Consider the villainies of Swollen Inventories which in the past have throttled Prosperity by sheer mass. This part is now played by a juvenile whose agile turnovers give him the figure of an athlete.

We see Security Prices, the widow of Prosperity, coming in on the arm of Easier Money. Gone are the sackcloth and ashes of recent bereavement. In fact, it would seem that the lady is definitely "looking around again."

New Construction, whose fall from grace last summer made it a plotter against Prosperity, has now become its principal protagonist.

Unemployment continues as the arch conspirator, putting over the part with an intensity and vehemence not witnessed since 1921.

Vying with Unemployment in dramatic force has been the Decline in Commodity Prices. While there is a tendency to overplay the part, there can be no question but that it involves adjustments which will complicate the Drama of 1930.

So much for the first act. From it the following conclusions may be drawn:

Nineteen-thirty will turn out to be subnormal but more comparable to the years 1924 and 1927 than to 1921. At the worst, it should interrupt rather than terminate the upward trend of the past nine years. Among the constructive factors which should presently increase the tempo of business are these: the stimulation of cheap money, the application of labor and material to the program of new construction, moderate inventories and unparalleled efficiency in transportation.

Opposed to these constructive factors we find unemployment more serious than it has been since 1921, and wide concern over the decline in commodity prices. There has naturally been some "whistling through the graveyard" aimed at restoring confidence. The recent testimony of William Green, President of the American Federation of Labor, before the Senate Commerce Committee, reveals conditions which cannot be taken lightly. When he intimates that three million seven hundred thousand workers were jobless in February and that the loss of wages during the first quarter amounted to one billion dollars, it is evident that despite the expected recovery during the second half, the full year 1930 will show deep scars.

With these characteristics of 1930 in mind, let us see how they are mirrored in current sales problems.

. . . A long established company manufacturing silk of superlative quality, finds its chief problem in the dress goods division. In former years this market was largely composed of women who personally selected the silk from which their dresses were made. With this group the prestige of the product and its wearing qualities were sufficient to command a premium price. This type of consumer buying has steadily declined, leaving the dress manufacturer in command. Here we find the primary emphasis on style, with such rapid changes in color and design as frequently to render the material obsolete before it can be worn out—often before it can even be made up and sold. The quality of material has thus lost much of its appeal and this factor combined with intense competition favors merchandise of lesser quality.

. . . A large manufacturer of hard-surface floor coverings, which are heavily advertised, finds its problem in retail price cutting. The popularity of the product with the public makes it especially susceptible to price cutting as "bait" in attracting the public. The dealer who operates conservatively finds his profits jeopardized and is tempted to take on lines not so well known. In short, he frequently elects to do a harder job of selling rather than forego his normal profit.

. . . The manufacturers of a quality oil burner consider man-power in selling their biggest problem. Curiously enough, this applies not so much to their own sales force, but to their dealers' sales organizations. Oil burners are not sold over the counter but in the home or office of the prospect. To be a successful oil burner salesman calls for qualifications of type, aptitude, experience and training which are not easy to combine in one personality. To sell a quality oil burner at *above* the average price requires all these qualities in a superlative degree. Convinced of the paramount importance of trained man-power, the manufacturer in question has for some time operated a training school. The present problem is to secure men of the right type for training.

. . . A company manufacturing garment pressing machines finds that under normal working conditions a pressing machine should be replaced after five years' usage. If retained for a longer period it will not only become unduly expensive to maintain from a servicing standpoint but will be obsolete in some measure due to improvement on later models. Replacement orders, thus far in 1930, are not maintaining the normal ratio to total sales. Their major problem is to overcome the natural tendency of the tradesman, which is to retain present equipment so long as depression continues in his business.

. . . A leading manufacturer of food products says that the major problem is to secure better retail co-operation in moving established trade-marked goods. The private brand is still a major obstruction in the distributing channel. In the battle royal between the chain stores and the independents, the private brand is being used offensively or defensively by both combatants and quite often to the detriment of the public. This situation is largely responsible for the fact that a dollar's worth of sales and advertising effort is showing a declining, rather than an increasing, turn.

. . . The makers of a nationally known cosmetic feel that intense competition for position on the dealer's shelves, counters and windows is the major problem. They find it far simpler to create public acceptance and demand for a worth while preparation than to keep the product conspicuously placed in the retail store.

. . . The manufacturers of a packaged line of specialty food products state that their fundamental problem is in adjusting their merchandising to the trend of commodity prices, particularly as manifested in hand-to-mouth buying. They feel that this is an economic trend to which the seller must adjust himself if he would prosper.

. . . A national distributor of floor coverings believes its major problem lies in educating the trade to utilize modern merchandising methods. It is expending a sizable part of its own income in developing, testing and simplifying plans which will increase dealer sales and at the same time improve profits through smaller but more effective inventories. These methods have proven successful wherever used, either by retailers or jobbers. The immediate problem is to secure a wider adoption of these merchandising plans by the trade. To do this involves systematic education of the jobber's salesmen who reach the rank and file of the retail trade.

. . . A large factor in the manufacture of cans and containers for packaged products states that they are chiefly concerned over the general uncertainty which is evidenced by a majority of their customers. The latter are largely food packing concerns and confectionery manufacturers whose present attitude is one of watchful waiting. This company finds that the price factor is no longer of supreme importance in selling their product. Service, in its broadest meaning, is of paramount importance in developing a larger market for cans and containers. The service facilities of this company are exceptional—including a complete food research laboratory and a group of plant engineers who are available to their customers.

. . . A leading manufacturer of high priced golf shoes finds his major problem lies in cheap facsimile imitations of his own product. These imitations lack certain features of design, material and workmanship which contribute to the higher cost of the original. To bring prices in line with competition means withdrawing the basic features which have popularized the shoe with players. To continue present lines and prices means increased sales resistance and smaller profits.

. . . A leading worsted manufacturer states that never before has it been so difficult to get buyers to maintain adequate stocks. This is only partly due to the natural hesitation engendered by a period of depression. One of the principal reasons for restrained buying lies in the sweeping changes which are taking place in the executive personnel of the major retail outlet. These changes reflect a desperate attempt to find the answer to successful retail merchandising. This shifting around of important merchandising executives with consequent lost motion, new policies and ideas, has to a large extent tied the buyer's hands. This buying restraint on the part of retail outlets simply backs up on the cutting and manufacturing trade who correspondingly confine their purchases to minimum requirements.

. . . A manufacturer of pyroxalin toilet-ware which is distributed nationally finds that intense competition within the industry has tended to shift control over styling and pricing from the manufacturers to the retailers. Large outlets such as mail order houses, chain stores, etc., shop the market for special sets, to be designed exclusively for them and priced by them at figures which show no reduction other than that of overhead by increased volume. While there are many facets to this manufacturer's major problem, it can be summed up as one of securing a larger proportion of the profitable business, leaving the unprofitable to competitors. This is scarcely a problem of 1930 alone as the process will be one of gradual infiltration involving a careful restyling of present lines, the addition of new profitable products, a thorough revamping of sales policies and personnel and vigorous advertising to lend prestige to the trade name and help break down sales resistance. As a preface to a carefully integrated long-term program, a specific merchandising plan will be introduced in the fall, the effect of which will be to give this manufacturer a sharp point of individuality and disassociate his products in marked degree from those of other manufacturers within the industry.

It is apparent that these examples might be further extended without bringing us materially closer to underlying causes. They are, in fact, symptoms which are intensely interesting to anyone interested in marketing, but are useful only as they provide some basis for diagnosis. A composite of these symptoms indicates the following general situation among the trade: a feeling of uncertainty and confusion, accompanied by a tendency to subordinate quality to price and style; to overemphasize the value of volume and rapid turnover in gaining net profits; to make up for price concessions on established lines by longer margins on lesser known merchandise; to "average up" profits, particularly on "style goods" by selling part at a long profit, part at cost and part at a loss; to depend more on the "mechanics" of merchandising and less on its human aspects.

It is evident that the reaction of the trade to the situation is the resultant of two forces—the force exerted by the producer and the force of the buying public. These forces have always existed, but they have been increasingly intensified by the developments of the past ten years. These developments have brought about the following situation:

1. Supply and demand are obviously out of balance. Growth in consumption while substantial has, nevertheless, lagged far behind normal production capacity. Both production and consumption have gone ahead in a series of spurts but with production slowing down intermittently to permit consumption to catch up. Actual production is now substantially less than normal capacity and vastly less than potential capacity. Under the

stimulus of science this potential will continue to increase and affect not only our factories and farms but speed up such services as transportation and management.

2. Whereas the principles which govern increased productivity are relatively few, scientifically defined, quickly resultful and limited only by the capacity of the human mind, the factors which govern consumption are manifold, often indirect, characteristically slow-moving and easily thrown out of balance.

3. Unused production capacity will continually seek an outlet, and because it cannot always be held under leash, supply and demand will remain out of balance. Thus an indefinite continuation of the buyer's market appears likely.

These conclusions simply outline the broad economic trend which has been gathering force during the past decade. Let us now consider the developments within that trend, particularly those which are most characteristic of 1930 and therefore represent its major marketing problems. Of these the most significant are: the Trend of Unemployment, the Decline in Commodity Prices and what we may term Buying Fatigue—the latter being a state of mind rather than pocketbook.

1. *Unemployment.* Not since 1921 has unemployment been a factor of such general concern as in 1930. No other factor is so sinister in its implications nor so sensitive to any maladjustments of the economic *status quo.* So long as unemployment remains a purely seasonal occurrence of minor intensity, no reason exists for profound apprehension, although it will definitely depress the year in which it occurs. Let us consider the extent to which it will probably affect 1930. It is estimated that there are now about forty-six million workers of whom about one million are habitually unemployed. In the depression of 1921, unemployment reached a peak of six million, with results which were disastrous.

Looking back to the late summer of 1929 it is probable that employment was as high as it has been since the period of war activities. In October the index of employment had declined to 98 per cent but, coincident with the stock market crash, it dropped precipitately to 84 per cent in late December. Secretary Davis points out that the recovery was conspicuously rapid and substantial in scope—from 84 per cent in December to 92 per cent in February. This abrupt recovery coming at the time when seasonal unemployment customarily sets in, is rather surprising. In fact, President Green of the American Federation of Labor feels that the figures issued by the government put too favorable a light on the situation. However, it seems definitely assured that there has been a recovery from the low point. This is particularly impressive because the imposing program of new construction fostered by the administration has not as yet got into full swing.

There is, however, another angle to the unemployment situation which remains definitely unfavorable. Recent surveys show a steadily increasing number of clerks, salesmen and minor executives in the ranks of the unemployed.

While under normal circumstances employment among the white collar group should rise and fall with that of industrial workers, two adverse factors are now present. One is the effect of mergers and consolidations, in reducing the numbers of employes required, and the other is the increasing adoption of labor-saving devices in business administration.

These two factors are commencing to exert a measurable influence on the problem—all the more so because the principal objective in consolidations is to effect economies in administration. Here is a problem that deserves more consideration than it appears to be getting. Aside from sentiment, this white collar brigade represents an important purchasing group both as to quantity and quality. It cannot be lightly disregarded in any era whose major problem is to increase consumption.

As a basic factor in the marketing problems of 1930 the trend of employment easily ranks first. It is a direct reflector of buying power and also an influencing factor in making that power manifest in consumption. For it is traditional of our people that when the skies are unclouded and modest reserves have been set up, they are free spenders of surplus income.

Now it seems probable that the employment clouds will continue to lift. This should do much to restore the status of savings deposits. An examination of this important backlog of buying power indicates that it not only suffered some depletion but also a reversal of a long upward trend. Beginning with 1910 and continuing without interruption through pre-war and post-war depressions there was a steady increase in savings deposits.

What is more significant, this increase was not gained at the expense of life insurance or the ownership of homes and securities because these important reserves also registered impressive gains. Boiled down, it looked as though our people had mastered the trick of eating our pie and also having it. We could produce more, consume more, spend more—and still have more. Already tested by war and its aftermath, this national ability to maintain liquid reserves was subsequently tried in the furnace of instalment buying and was again proved non-combustible.

This reversal in the trend of savings accounts began prior to the stock crash which indicates that a large number of depositors had been withdrawing their savings to participate in the stock market. In short, the savings account habit which had withstood adversity could not, perhaps, withstand the lure of "easy money." For the purposes of this discussion the cause of this reversal is not so important as the effect it will have on consumption during 1930. It seems entirely logical that the restoration of the normal trend in savings accounts and the clearing up of accrued obligation will antedate any period of free spending. And it is not easy to estimate the amount of re-employment which must occur, and over what period of time, to liquidate the varied obligations of those who have been jobless.

To sum up, the state of employment during 1930 will have a direct and vital bearing on the sales problems of this and future years. It is a major problem which until brought under control will continue to challenge American prosperity. Government and industry are now deeply concerned, and are acting in unison. Facts are gradually supplanting alarmist bunk on the one hand, and political Pollyanna on the other. Surely it is not too much to hope that the brains and resources which gave us leadership in production and management will ultimately regulate the conditions of employment.

2. *Decline of Commodity Prices.* Like the tariff and unemployment, this subject has been befogged by a diversity of viewpoints. The disciples of John Stuart Mill believe that a comprehensive and gradual decline of commodity prices is an approach to the millennium. They take the position that all sellers are in the end, at least, buyers of commodities—that when the supply is doubled, the price is cut in half, which means doubling the *purchasing power.* They hold that what happens to price is not important because the essential remuneration of the producer is not dependent on how much money, but on how much in consumable products he receives for his goods. But this complacent viewpoint, correct as it may be over an extended period, is not shared by those who suffer from the immediate irregularities of changing values. Unfortunately, the index figure of one commodity compared to all others does not rise and fall in unison. Therefore the temporary effects of such a pronounced decline as we have had in agricultural products is not only disturbing to the farmer but is also a depressant to business in general. Regardless of the extent to which purchasing power has diminished, an immediate effect is to restrain merchants from buying freely. The incentive to "stock up" is lacking as long as supply is assured and there is any likelihood of obtaining better prices. This depressant starts with the retailer and works back through the jobber and manufacturer and eventually to the producer of raw materials. At this point it becomes a factor in depressing prices still further. Something like this has been happening recently, and as far as 1930 marketing is concerned, a major problem will be that of adjustment to these conditions.

3. *Buying Fatigue.* I have already referred to buying fatigue as a state of mind rather than pocketbook—a mental attitude on the part of the individual which, when considered collectively, results in a tired market. The people composing this market are distinctly in the minority when compared with total population but, nevertheless, they represent an important division of national buying power. In the main, they are people who, according to their individual standards, have maintained satisfactory reserves, have experienced no serious impairment of income and have little apprehension about the future. They are people who either stayed out of the stock market or who emerged from it without serious consequences. We do not need any elaborate survey to assure ourselves that the number of people who are now capable of greater consumption represents an important potential market. It is a market which has representation in all but the lowest income groups. It is a market which for years has received the concentrated fire of intensive sales effort. It has

been written to, phoned to, wired to, advertised to, called upon, bullied, cajoled, threatened and tempted. Each year it has bought more and still more things. And finally last summer at the very peak of good times, it commenced to show symptoms of being tired and jaded. Long before the fall crash the motor and radio industries were reflecting the lethargy of a market which had gone stale.

Gradually and in varying degrees this lagging market made itself felt in other industries. The conventional stimulants of the merchandising medicine chest were used in larger doses but with a sedative, rather than a tonic, effect. It is, of course, characteristic of stimulants that frequent usage develops an increasing degree of immunity. There comes a time when "bargains," as such, lose their punch—when "convenient payments" fail to tempt—when the kaleidoscope of changing styles, colors and designs does more to confuse than to attract—when synthetic obsolescence is more irritating than stimulating—a time when people will even declare an armistice with the "Jones family." It is wholly inconceivable that this tired market will remain tired indefinitely. The law of action and reaction works both ways. Powerful economic forces are continually lifting from beneath. Above all, it is a characteristic of the American people that, given reasonable periods of adjustment, they will expend surplus income to the uttermost in raising their standards of living. In the long run the Jones's are not there to be kept up with—but to be passed.

Nevertheless, in spite of the long term trend, a major problem for 1930 is to overcome the inertia of a tired and jaded market. That it can be done is abundantly proved by the example of some of the leaders in manufacturing and merchandising.

Now, since the essence of a paper like this is to reach conclusions which will be helpful, we may profitably consider what is being done toward bringing about a closer adjustment with unemployment, with declining commodity prices and with buying fatigue.

Unemployment is dominating public attention as never before. Able minds are being drafted by Federal, State and private agencies. Much has already been accomplished, such as Procter & Gamble's forty-eight week employment schedule. Assuredly much more will result from the concerted effort to remove a conspicuous blot from our industrial escutcheon. But from the standpoint of sales management during 1930, the problem is one of immediate adjustment rather than ultimate removal. This implies the intelligent use of current employment indices as a factor in production and marketing schedules.

As to declining commodity prices we find a wide and fascinating opportunity for study and adjustment. Nothing is more natural than the present downward trend in commodities of all kinds. Only such violent economic disruptions as great wars have been able to interrupt a world-wide trend toward lower prices. It is simply a reflection of increasing fecundity under improving methods of production.

As an example of the adjustments which are being made in harmony with this inevitable trend, here is one which seems particularly applicable. It is that of a company producing a specialized line of food products to which prior reference has been made.

To begin with, the administration of this enterprise is an example of the practical application of economics to business management. Its policies are rooted in fundamentals. Its activities do not seem to be governed by transient and superficial forces from without, but radiate from within. It will be recalled that this company feels that its major sales problem for 1930 is one of closer adjustment to the declining trend of commodity prices, particularly as manifested in more intensified hand-to-mouth buying. In their opinion, declining prices simply reflect conditions which provide no incentives, either for the trade or for the consumer to purchase in advance of immediate requirements. The management of this company considers it folly to oppose this trend—instead they are making every effort to conform to its demands. This takes the form of adapting their merchandising to the changing preferences of the trade and the consumer.

In adjusting its packaging to meet this condition, the company has studied the needs and desires of the consumer and made a number of changes which have reduced resistance at the point of sale.

Let us now turn to the problem of buying fatigue. As a concrete illustration, one of the major products of this company is packaged dates. As the pioneer in this field it has revolutionized the date business and is today the dominating factor in it. Under these circumstances it would be somewhat natural if the company considered its product developed to a static point and therefore concentrated its entire energies on more intensive marketing. Instead, the governing policy seems to be that competition from without is less to be feared than complacency from within. This is evidenced by periodic improvements both in the product and package, each aimed at meeting the changes in public taste—often before the public is conscious of such changes.

Packaged dates were first introduced to meet the trend toward sanitation in food products, and a growing preference for branded goods of known merit. While the trademark and general characteristics of the earlier packages have been retained, there have been frequent improvements in the "eye value" and utility of the package. To the layman it would seem that little could be done for the product, itself, aside from selecting the best dates and packing them with due regard for sanitation. It is, therefore, surprising to see what has been accomplished within seemingly narrow limitations. As an illustration, consider dates as a substitute for candy. In this field dates have been handicapped by hard pits and stickiness in handling. Until recently the packages opened from the small end which made the contents hard to get at. To meet these conditions a new type of product and package have been introduced. This package opens from the top like a box of candy, exposing an appetizing row of dates which have been pitted and pasteurized. This new package weighs approximately one-half pound and sells for twenty-five cents—a remarkable value when compared to the price of moderately good candy. Progress is now being made in further reducing the stickiness of the product and enhancing its appearance by a glazing process.

Another appropriate example is that of a national distributor of floor coverings. Some five years ago this company became convinced that the buyers' market was here to stay. It decided at that time not to oppose the economic tide, but to swim vigorously with it. As a prelude to action it set out to get the facts on which to base a merchandising technique appropriate to the new era.

As a foundation on which to build, a comprehensive evaluation of the carpet and rug market was set up for every county in the United States. This appraisal, when broken down into sales districts, provided a basis for measuring and comparing the potentials of individual territories. The next step was a study of its jobbers' territories. Factors such as freight rates, back hauling and geographical relation to competitive jobbing centers were combined and charted to show the contour of each jobber's logical territory. Each section of these contours was then studied to show the percentage of total volume which should come from each. Thus the jobber was provided with a working blue-print of his territory. He was not only able to closely estimate his total volume but to know what each section should produce. The next important project involved a study of the wholesale prices which should obtain throughout the country after giving effect to fluctuations in the cost of haulage. This resulted in a division of the United States into eight price zones, with definite wholesale prices for each one. These were the prices at which a jobber located within a given zone would make quotations. Thus a retailer located twenty-five miles from a given jobbing point in Zone 4 would know that the lowest price to him or any other dealer within that zone would be according to the Zone 4 price schedule. The effect of this plan has been to stabilize prices and practically eliminate price cutting. Another important undertaking was to provide the trade with a modern substitute for rule-of-thumb buying methods. The tastes and preferences of the consumer were exhaustively studied and compared with the current sales records of the company by grades, sizes and patterns. From this composite information it was possible to establish a fairly accurate rating. Distributors and dealers are given this information currently so they can quickly estimate relative salability. Thus a dealer by eliminating the dead stock—which results from haphazard buying—is able to serve his customers better and at the same time improve his profits. A natural sequel to systematic pattern selection is that of establishing the total inventory which should be carried by the individual store and its breakdown in grades, sizes and patterns. As may be imagined, the creation of an inventory schedule applicable to the general run of establishments is a man-sized job in itself. Nevertheless, by the use of a unique mechanical device it has been put in such simple and compact form that any dealer of moderate intelligence can use it to practical advantage.

These various projects are of course merely the highlights of a carefully integrated marketing plan. While its primary aim is to raise the level of retail merchandising methods, its tonic effect reaches back into the mills. The ratings established for the dealer's guidance are equally valuable in scheduling mill production. Thus the trend is toward "sure-fire" merchandise and a reduction in inventory deadwood. A phase which has specific bearing on buying fatigue is the success which has come from grading up the appearance of the cheaper floor coverings. Patterns and colorings formerly confined to the highest priced lines are now found in carpets and rugs within reach of the average consumer. Good taste as expressed in authentic patterns and coloring has proved itself a potent stimulant.

Turning to another industry we find a wholesome example of co-ordinated marketing effort which starts with production blue-prints and follows through to the consumer. As the world's largest producer of quality oil burners, this company has had to maintain standards which precluded competitive pricing. Its sole selling weapon has been dependability and low operating costs, qualities which can only be capitalized by dealers of exceptional caliber. Previous reference has been made to the man-power problem of this company —that is, of securing intelligent and resourceful selling material which can be technically trained and made available to the company's dealers. The solution to this problem was found in a central training school which not only supplies the essential technical background but the technique of selling oil burners. The marketing philosophy of the company is that a vast hidden market exists for their product right now; that the families in this market have both the buying power and the need for the product which intelligent presentation will crystallize into orders; that the average installation cost of $1,000 is no sales handicap when the return on the investment is properly dramatized. In short, that buying inertia can be overcome by first-class selling of a first-class product.

This policy, on which the company has achieved conspicuous success, came in for severe testing last summer and fall. Residential construction declined sharply, followed by the market crash which dealt a body blow to semi-luxuries. But if any vindication were needed, here it is. Sales increases over the same months of the previous year were: November 72 per cent, December 193 per cent, January 149 per cent, February 68 per cent. And it is notable that since this company's dealers are permitted to stock burners only for immediate requirements, these sales records do not imply a transfer of factory inventory to the dealer, but actual consumer installations.

Up to now, reference has been confined to producers and distributors. Let us briefly consider an example in the retail field. There is in New York a well-known department store which for generations has bowed down at the altar of price—naked and unadorned. Dealing strictly for cash it boasted that the worst that could happen to anyone was 6 per cent under the price of any other store. Acting strictly and energetically—but somewhat unimaginatively, within this policy, it achieved substantial success. And then, a few years ago, the whole atmosphere of the store commenced to change. With one foot still firmly placed on the proven appeal of "subway prices" for cash, it started to explore higher merchandising regions. It contrived to identify itself with the trend toward modern art and good taste in articles of utility. Its advertising ceased to be a dull catalogue of cut prices on well known merchandise, and became bright and sparkling and persuasive.

Goods were made attractive and desirable in their own right rather than simply as "bargains." Using the slogan "It's smart to be thrifty" a competitive liability was transformed into an asset. As the tone of the establishment improved, it commenced to recruit from the higher income groups. Fashionable suburbanites and the Fifth Avenue "carriage trade" came, and saw, and were conquered.

Now when the market crash came, it simply emphasized a trend which had been long under way. The goddess of price is still on the altar, but no longer unadorned and therefore infinitely more captivating. In all this we see the creation of an atmosphere in which buying fatigue cannot exist. It is apparent of course that equality of opportunity does not exist among all retail outlets. They cannot all, by taking thought, add a full cubit to their merchandising stature. But all of them can in some degree raise the level of their merchandising strategy. The first step obviously involves greater discrimination in the selection of goods. Merchandise having inherent salability and susceptible to a glamourous treatment will replace the ugly ducklings which must be worked off on the bargain counters.

Now, under a highly selective system of buying, it is apparent that many products will be rejected. Those who continue to manufacture along traditional lines will become "marginal producers" who can operate with profit only in those periods when demand is beyond supply. And it is somewhat surprising to find how so many businesses are still being guided by the traditions of another era. Traditions which were once the stabilizing ballast of the business but have now become a dead weight upon it. Quite frequently we find these enterprises running contrary to the gravity of the times, doing business in economic valleys and then exerting prodigious effort to push their products into the uplands of trade. How rare it is to see a business set upon a high peak with its products flowing easily and naturally downhill to market. From such an eminence the whole marketing panorama spreads out in distinct perspective. Important trends are discerned in advance and the problems of the future clearly foreshadowed. We have already considered some examples of management which plots its course from the high places. We have seen how their problems have been anticipated and how their tactics of 1930 simply reflect the strategy of 1929. It is not inferred that such management can establish peak records in subnormal years. But it is important and material that these companies are not swerved from their course either by the four leaf clovers of prosperity or the thistles of lean years.

Perhaps nothing is more significant than the constructive way in which enlightened management utilizes the periodic "breathing spells" of business. These are as natural as the tides, and like them, the ebb is inevitably followed by the flood. Discerning management finds in these periods a splendid opportunity for rehabilitation. It is a time for planning, for testing, for building, for reorganization. And to the producer who would be prepared for coming eventualities it is a time for self-questioning. Questions like these:

As to general business conditions, how about 1931? What is the trend of public taste on products like mine, and how can it be anticipated? To what extent is my current product now flowing downhill to a receptive market? In what particulars is my product handicapped in reaching through to the consumer? Have I established proper trade incentives to assure reasonable exploitation for my goods? Is the return from my investment in marketing effort increasing or decreasing? Is my advertising of the "triple threat" type which registers with the consumer, wins the active co-operation of the dealer and is sincerely endorsed and used by my sales force? To what extent is my sales organization forced to adopt high pressure selling methods to offset defects in my product and merchandising plan?

This reference to the sales organization reminds me that no consideration has been given as yet to the function of personal salesmanship in meeting the marketing problems of 1930. It has been purposely left to the last because, under proper conditions, the work of the salesman represents the climax of marketing effort. Unfortunately, the average salesman for the average company too often represents an anti-climax which is not of his making. After some seventeen years of personal selling and sales direction I reached the conclusion that the rising cost of salesmanship was largely due to a misconception of its proper functions. Under modern conditions the normal trend of salesmanship is toward specialization in functions for which there is no substitute. His specialty is dealing with the human equation, particularly those situations which require action. He is the ambassador of his house, charged with the important responsibility of maintaining good-will. He is a merchandising specialist who can show his customers how to move his goods more quickly and more profitably. He is the high priest of his company's marketing plan, believing in it—selling it—making it work. To use a homely simile, the modern salesman is a specialist in harvesting. To others is left the job of selecting the right soil, of sowing the right seed, of tilling and fertilizing.

And it is in this preparation of the marketing field for a more economical harvest that advertising has won its spurs. As a fertilizer and top dressing, it enriches and invigorates the soil. It can and does make two blades of grass grow where only one grew before. And if good seed has been sown in worthy soil, advertising will help the harvester to establish the cost of his work in proper relation to the value of the crop. Naturally, this advertising fertilizer has its limitations. It will not grow pineapples in Minnesota; it will not change the essential qualities of the seed; it is not a substitute for tilling and harrowing and weeding, and it will not justify a crop which should never have been planted. But it is from just such misconceptions that advertising has suffered most—both within and without the profession.

Reverting to salesmanship, it seems to me that in meeting the problems of 1930 the good salesman who carries the shield of "wanted goods," the buckler of a definite marketing plan, and the sharp sword of "triple threat" advertising will rise to the occasion.

And now in conclusion I want to quote from a letter which I believe represents the epitome of all that has been discussed. It is from the general sales manager of an important company addressed to one of its principal jobbers. It is purely extemporaneous—dictated from the mind and the heart in the course of the day's regular round of activities.

April 10, 1930

Dear Mr. . . .

I think we all pretty well agree on the job that is ahead of us; we, on our part, have got to create better consumer interest in floor coverings and house furnishings; we have got to be in advance of the rest of the market in style, color, sizes and new fabrics. And of course we have got to price our lines right and make goods the consumer wants and will readily accept.

You, on your part, have got to establish dealer confidence through service, but the big thing to me, as I see salesmanship today, is to sell our merchandising plan and when this is sold, our merchandise will naturally follow, if it is the right kind of merchandise.

I do feel, however, that our distributor's men, as a whole, are not talking as they should about our resale program, concentration by the dealer on the best selling patterns and colors and on the right sizes, the elimination of "plugs" and dead stock, the carrying of a model inventory, only one rug of each, the budgeting of their purchases, a knowledge of their own market, the matter of price range in retailer's stocks and all of the many things which go to make up real merchandising.

I do not think that you will begin to get all the benefits from our sales program until your men talk this thing first, last and all the time; that they make the retail dealer see that his first cost is not his ultimate cost. I do not believe you will get the dealer's full confidence and his full support until these things are accomplished.

Our promotion men are trying to get this program over but it is a radical step. It is telling a lot of merchants a better way to run their business, and they do not accept this suggestion kindly, thinking that because they have had success in the past, they are going to be successful in the future.

There is too much waste in the distribution of most commodities. Manufacturing, on the other hand, is on a pretty scientific basis today and competition among manufacturers is very keen.

Retailers on the other hand continue to increase their overhead and the poor consumer has got to pay all the freight bills.

I think the thing we all want to do today is to do our job to the very best of our ability, internally and externally, and I can say to you we are bending all of our efforts in this direction, and while we cannot accomplish all we would like to do, yet I think you will agree with us we have made a good start in the right direction this past year.

Instances are coming to our attention frequently of retailers who a year ago were bitterly opposed to our sales plan but who are now lining up with distributors. Through our best selling pattern program and one rug of a kind, along with the rest of it, they are now getting a turnover that they never knew was in the business—eight, ten times, as high as twenty times, a year turnover.

Very truly yours,

I believe this one letter from the rifle pits gives a clearer picture of the sales problems of 1930 than all the words which have preceded it. Better yet, it shows what is being done about them.

In this, our time of marketing trouble, it is possible to become overly morbid in an atmosphere of dissections and post-mortems. But this trouble will pass, as it always has, leaving us the heritage of a surer marketing technique against the future that we are facing.

Discussion

E. St. Elmo Lewis.[2] I like Mr. Goodell's term "buying fatigue." As a member of a couple of boards of directors I have become very tired of the present market situation but I did not know I was catching it from the customer.

Several years ago Mr. Staubach, who had for a number of years been sales manager of the Burroughs Adding Machine Company, made a series of contributions to the Taylor Society in which he discussed the whole scientific basis for the making of sales quotas in the Burroughs company. That organization has for twenty-five or more years predetermined the amount of business it would do in any twelve months. That predetermination is based on a scientific analysis of the absorption capacities of its territories. The whole sales organization is judged on its effectiveness in measuring up to the standard set. Over a period of years the Burroughs Adding Machine Company has never been more than 5 per cent over or under the quota. This spread of 10 per cent seems to me like a pretty good accomplishment when I consider some of the automobile companies who could not come within 49 per cent of what they thought they could do. We need this kind of control in all our markets. If we had it, it would be possible to reduce or prevent the excess of plant capacity that is present in this country.

A great many people seem to think they have only to make a high quality of goods to get buyers. But what is quality? There is a market quality as well as a technical quality. I met a delegation of thirty-five Irish and Scotch linen manufacturers who had come over here to find out why Czechoslovakian, Swiss and French linens were being bought in this country instead of their products. They were proud of the fact that the Irish and Scotch linens are the finest, technically speaking, in the world. But I hit upon two factors that they had not considered. In the first place their artists were using mid-Victorian designs, and in the second place, they had not surrendered to the lure of color. I told them that it made no difference how excellent their product might be technically if it was not what the American consumer wanted. As a result of their conferences they hired an American artist to go back to Belfast and Dundee with them and assist them in styling their excellent product for the American market.

Even so unreliable a thing as fashion can be predicted. Dr. Nystrom has talked before you on this subject and has written books on it. Ward Cheney of Cheney Brothers Silk Company has brought out a little pamphlet on trends in color. All I want to do is to point out that attempts *are* being made to find out the facts about things that had been considered so intangible that nothing could be done about them. Standards are being set up in merchandising, advertising and selling, and tests are being worked out, so that the distributor may have some idea of what to expect in the way of consumption, and the buyer in the way of quality of goods. Advertising is being tested every day by department stores and mail order houses. The methods they are employing could be used with profit by anyone who is advertising today. The fact that vast sums of money are being expended on advertising campaigns without any adequate check on the results does not make the practice defensible.

It used to be, when I was young in the city of Detroit, that the automobile manufacturers were definitely out to break 25 to 30 per cent of their dealers. It was f. o. b. Detroit and let it go at that. They are beginning to realize now, however, that the retail merchant is a part of their selling organization and that he must be given constructive help. Merchandising campaigns must be carried clear through to the consumer and not stop at the retailer's truck. Mr. Sloan of General Motors has just come out with a statement to this effect.

The Elgin Watch Company was up against the problem a few years ago of meeting the competition of inferior goods. Their watches were getting into the hands of gyp auction houses who were using them as a bait to get customers inside to buy the cheaper, more profitable goods. They now know where every one of their watches goes and if they find one in the hands of an auction house the people who permitted it do not get another shipment. They have even gone farther and rated their distributors, A, B and C. The A distributors are required to carry a certain line, the B another, and so on. I should not be surprised if other watch makers and manufacturers follow this plan.

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[2] Counsel in Trade and Consumer Relations, Detroit, Mich.

I commend to the young men especially one of the fundamental ideas of the Taylor Society and that is that you face the facts. And one of the fundamentals in marketing is that you realize it is the consumer who keeps you in business and not your personal opinion.

Merritt B. Lum.[8] In a sense the papers presented today should have been reversed. In the morning we should have had Mr. Goodell's paper of problems and Mr. Lamson's paper of solutions in the afternoon. If Mr. Ogle, of the Bauer and Black plant, were here I am sure he could tell you something of what that branch of The Kendall Company is doing in carrying out Taylor principles in the marketing end of their business. Perhaps the major sales problem of 1930 is the selling to management of the idea of its responsibility. The Kendall example is an extraordinary example of an organization in which that sales job has been done.

Marketing developments are coming to be more and more concentrated into the hands of a few large organizations, and it is up to groups like the Taylor Society to sell a sound point of view on distribution to the heads of these large corporations and marketing agencies.

The first step is to face the facts. In order to face facts, more research as to the quantity and quality of goods that can be sold is necessary. We must realize also that our striving for volume in sales has become dangerous. The emphasis must now be on profits, rather than on volume. And we must face facts as regards chain store development. It is surprising to me that many manufacturers are backing up the independent stores in their reliance on propaganda and an appeal to the emotions as a solution for their problems. Manufacturers must also face the fact that the old monopolies are dying out in this country. The competition of the future is not to be based on the possession of a particular geographic location, the control of certain raw materials or even better manufacturing techniques. Competition will be based on the possession of knowledge of what the consumer will buy.

The next important element is flexibility. There is no longer security in tradition. It may have worked in a seller's market to go on producing quality goods at a certain price level, but it will not work today. The same is true for the wholesaler and the retailer. There is no longer any tradition of location for the retailer. Good roads, the automobile and the general mobility of the consumer have removed this advantage. Our accelerated tempo, all the processes of education, radios and movies, are making the merchandising problem more and more difficult for the man who is not in touch with the consumer. We must expect more and more style changes and learn to anticipate them. The manufacturer who is not studying styles is simply out of luck. Hand to mouth buying is undoubtedly here to stay, and we have got to be flexible enough to adapt ourselves to it.

Co-ordination within the organization is the third necessity. The Bauer and Black plant has worked this out to a fine degree. They have a research department, a sales planning department, an advertising department and a sales operating department. They have definitely recognized the different functions of marketing, but they are also maintaining harmony between all these different specialists.

Unselfishness is another important factor. It should take form in the manufacturer's relations with his trade associations, in his willingness to co-operate with other men in his line, to assist in doing away with unsound and unethical practices. We are never going to avoid price depression until the individual producer has sufficient unselfishness to refrain from starting price wars. The same should hold true of the relations between manufacturer, wholesaler and retailer. Too often the manufacturer has only his own success and not that of the retailer in mind. He has forced unsalable merchandise on the retailer. These three, the manufacturer, the wholesaler and the retailer, are links in a chain; and nothing should be done that is not for the good of all of them. Mr. Goodell did not say much about the wholesaler's problems. The wholesaler has been rather selfish in the past and has complicated matters by forcing goods on the retailers. He has not used research; but he must, if he is to survive. His territories are overlapping those of other wholesalers, with the result that none of them is making money. The retailer must also be unselfish enough to take the wholesaler and the manufacturer into his confidence. They need the facts that he can give them. He must co-operate in promotion plans, be fair in his display policy, and maintain adequate stocks.

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[8] Marketing Counselor, Chicago, Ill.

And last but not least, we must have more daring. The textile industry has lacked daring. Other industries have scrapped their old machines, even though it has cost them a lot of money. Old models must be scrapped and scrapped quickly, if industry is to survive. It takes daring and money to entrench oneself with the consumers. And in order to do it successfully, advertising and promotion schemes must be truthful.

If I have emphasized the fact that the major distribution problem is the appreciation of these problems by the leaders of industry, I have perhaps added something to this discussion.

Charles H. Chase.[4] I am not in business but there are some questions I should like to ask. We have been presented with several solutions for the sales problem of 1930 and the following years. It has been suggested that the merchant by a coordinated program within an industry can solve the problem. Mr. Lewis says that if we measure our markets out correctly we are going to get on with the problem satisfactorily, and Mr. Goodell approaches it by saying that the real trouble is buying fatigue. If you keep up with consumer demand you will not have that fatigue. But there is a problem raised by the forward-looking automobile manufacturers mentioned by Mr. Lewis. If they are going to refuse to burden their dealers with more cars than they can sell, they may solve the dealer problem but will they not create another? Will they not add to that unused plant capacity which has been mentioned here and at the same time to unemployment? We may also solve the dealer problem by refusing to produce unless we can make an adequate profit. Profits are considered the all important thing; Leonard Ayres says they increased by 78 per cent in the four years prior to 1929. But have wages or any other form of income increased at any such rate during the same period? And yet we are urging here that profits be increased. Mr. Hoover tells us we should not use these profits to buy more manufacturing plants, of which we already have too many. If we are going to reduce the number of people who receive these profits how are we going to manage to sell the products of those who are making the profits? I am trying to find out what is going to happen in 1931.

I should like to see this session carried on in the way that Napoleon carried on his sessions. Everyone should be set to work and no adjournment permitted until a solution is reached. The usual method is to get part of a solution and let it go at that. We pound at a swelling until it disappears, but unfortunately it crops out in another place.

How would all the speakers prevent buying fatigue under present conditions? Suppose you price a certain commodity at $1000 and distribute $300 of that $1000 for raw materials, $300 for wages, $100 for selling equipment, $100 for overhead, $100 for dividends and $100 for undivided surplus. How can the distributive purchasing power released in the production of this product ever come back and buy the $1000 product? Some organizations that are producing out-of-date stuff are releasing purchasing power to buy Mr. Kendall's products. They are not getting it back themselves. Another part of the surplus is going into the building of these excess plants which should not be built. But if these plants are not built how is our Ohio ceramic industry, for example, to survive? How are profits going to be spent unless they are spent in this extension of plant and machinery which has been decried? Could they be expended in a way that would create a more potent market force? The consumptive force that is created by undivided surplus eventually finds its way back into the hands of the dealers, and are not 25 or more per cent of them eventually going to be forced into bankruptcy because a sufficient amount of purchasing power has not been distributed to purchase their products?

Frederick L. Lamson.[5] Mr. Chase objects to profits. I think we should keep in mind, however, that it is no longer a few people who own industry and get these profits. American Telephone and Telegraph stock is owned today by 496,000 shareholders. The profits that this company makes are distributed to all these shareholders who therefore have a greater purchasing power than they otherwise would have had. We could still further increase this purchasing power if we would invest our surpluses where there are inventive brains. It is not necessary that the profits of individual industries should be built up. When markets and people are studied new things are discovered which satisfy new wants. Brains in management mean better wages, more purchasing power and more enjoyment of life. I think we should go further and see that more satisfactory dividends are paid on the investment of stocks in the industries of this country.

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[4] Professor, Sales Management, Ohio State University, Columbus, Ohio.

[5] Assistant to the President, The Kendall Company, Boston, Mass.

There seems to have been an assumption here that when money is received in profits it is in some way taken out of circulation. As a matter of fact, as well as going back to stockholders, it goes into wages, interest, the cost of materials, etc. It seems to me, also, that the laws of economics will take care of this investment of capital in unused producers' goods. People will not continue indefinitely to invest in unprofitable projects. Obsolescence of course complicates the matter.

Frank R. Goodell. I think Mr. Chase, being a young man, may not have given as much consideration as he should to the time factor in all these questions that he has raised. In George Washington's time they used to bleed people who were ill. Instead of doing that today they tell the story of the Scotchman with a nose bleed who ran ten blocks to sell the blood to a New York hospital for blood transfusions. Some remarkable cures were worked in the old way but more remarkable ones are worked in the new. We make some progress all the time. There are Kendalls in business today. It is our problem, to get rid of the others who are unfit. Twenty-five years ago plants were shut down and wages reduced without any attempt to find out a better way to handle the problem. While the wage earner's situation may not be ideal today, he is better off than he was in those days. The philosophical and patient person is fairly content if over every ten-year period he sees a material improvement in the distribution and quality of goods. I am satisfied with the general trend which I believe to be wholesome. Industry is more and more going into the hands of ordinary people, many of them workers. Not 1 per cent of the American Telephone and Telegraph stock, owned by 496,000 stockholders, is owned by one man. Capitalism is not what it should be but it is no longer the bugaboo it used to be.

TURNING from the production of goods to their distribution, we can find a vast field for the exercise of more rational methods. Indeed, many students of the subject are convinced that it is in this direction that the largest wastes in our present economic system are to be found. Already in the United States of America the existence of an ample domestic market, coupled with the problem of great distances, have given an impetus to experiments in methods of distribution which may well revolutionise our practice in this respect. The arrangement by which the manufacturer sold his product to a wholesaler or agent, who again distributed it either through a further wholesaler or direct to a retailer, who finally passed the goods to the consumer, has already been modified in many directions. The necessities of modern large-scale production and competitive demands for immediate delivery, have forced the manufacturer to secure for himself more stable and reliable markets than could be obtained through fortuitous purchasing by the wholesaler. This has led to more scientific study of the actual demand for his goods expressed in the buying capacities of the final consumer, to campaigns of national advertising, to the branding and packaging of proprietary goods, and in certain cases to the combination of retail and manufacturing activities. While the small retail establishment is still dominant in the field of distribution and may yet have a long and useful service to perform, it is clear that the individual retailer cannot command those specialised services which are available to larger undertakings. This difficulty may be overcome . . . but (the means) are as yet comparatively undeveloped. (L. Urwick, *The Meaning of Rationalisation,* p. 36-37.)

Plant Facilities[1]

Conditions Basic to Their Effective Utilization

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Introduction

AT THE December meeting of the Taylor Society, a paper by Mr. John H. Williams on "Is There an Optimum Size of Organization?" was read and discussed. The net result of this discussion seemed to be that, leaving out the human element, there was no limit to the size to which an organization might grow. When the human element is considered, it was the consensus of opinion that the quality of the human element at and near the top controlled the size at which the most effective operation would be found.

It seems to me that in attempting to discuss "Basic Conditions of Effective Utilization of Facilities," we can start at the point where we left off in discussing the previous paper. For the benefit of those who were not fortunate enough to be present at that meeting, I will quote from Mr. Williams' paper:

> 1. There is no optimum size for organizations in general.
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> 2. Theoretically, there is no optimum size for each particular organization.
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> 3. Practically, there is an optimum size for each particular organization dependent upon:
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> a. The extent to which the personal equation (as distinguished from a repetitive function) enters into the service or product of the organization.
>
> In other words, an organization rendering a personal service must be much smaller to be effective than one whose product is produced through repetitive or continuous process methods.
>
> b. The extent to which authority is decentralized and there is an incentive for co-operation between the managers of the units exercising authority.
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> As an organization increases in size, the multiplicity of detail automatically brings about decentralization of activity. Unless authority is decentralized proportionately with activity and there is an incentive for its effective use, decisions are so far removed from the point of action as to be ineffective and to materially slow down the whole procedure.
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> c. The extent to which the accounting procedure is standardized on a basis which will enable effective comparison as between units in terms which will be stimulating to the managers of such units.
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> Accounting is the measuring rod of management. Without it the whole thing becomes purposeless from an economic standpoint. If you have two organizations comparable in every way, one, however, with comparable accounting; that is, with full knowledge of relative performance in terms of responsibilities, and the other with ordinary accounting, where results are not comparable in terms of responsibilities, this one difference may well determine the point of optimum size.
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> Probably the most critical time in the life of most organizations is that in which they become too large for the domination of one man and before they become adjustable to multiple control. The major necessary adjustments to make multiple control workable are as follows:
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> 1. The replacing of the world-old idea of authority by birth, ownership or rank with the concept of authority by fitness and function. This involves the concept that Smith may have authority over Jones in certain matters and Jones over Smith in others.
>
> 2. The development of the idea of leadership as a substitute for authority on the part of the chief executive.
>
> 3. Visualization of the undertaking in terms of responsibilities and the assignment of authority on that basis.
>
> 4. Setting up accounts in conformity with authority in place of concepts of expense.
>
> 5. Introduction of a flexible budget and some form of reward, which should be in proportion to results accomplished, for persons exercising authority.

With this as a basis, we can proceed with our discussion.

What is it that makes effective utilization possible? One might ask, "Why not discuss the principles of scientific management?" Essentially that is what we are going to do, but I am going to split it up a little differently. There probably are other headings that could be added to these I am listing, and I hope they are brought out in the discussion. The basic conditions are: (1) a comprehensive plan or purpose for the organization; (2) standardized conditions; (3) inter-related or balanced equipment; (4) knowledge of the science of processing the product; (5) methods consciousness; (6) control; (7) supervision; (8) definite product in definite quantities; (9) uniform material control; (10) payment for performance; (11) maintenance of standards; (12) attitude; (13) selection of personnel; (14) leadership.

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[1] Paper presented at a meeting of the Taylor Society, Columbus, Ohio, May 1, 1930.

Basic Conditions

1. *A Comprehensive Plan.* The first basic condition to consider is a comprehensive plan for the operation of the entire production unit. This plan must have a definite purpose for which every man in the organization is a willing worker. What purpose of an organization can be created that will induce every man to work interestedly for the benefit of the organization? Will a man's heart be in his work when the avowed purpose of the company is to make dividends for the stockholders? No! To be an effective employe (and this includes the manager and all the executives) a man must feel that he has a real job, that he is helping to serve mankind through the work of his brain and his hands, that he will profit directly by his efforts, that he has an opportunity to help others, and that others are helping him to attain the same goal.

The developing of this purpose into a practical application results in the formation of a plan for the operation of the organization so that every man can attain this purpose. In order to have intelligent co-operation in an organization, it is essential that the entire personnel understand how each one can co-operate. This takes us into the realm of organization where functions and duties are outlined. As a product of research along these lines, we have organization charts, standing orders, policies, and a host of defining mediums all designed to clarify and simplify the management problem.

The plan of operation should be such that the performances of daily tasks are educational steps toward advancement into tasks of greater responsibility. The personnel should be so trained by such a plan that there will always be a trained man to step into a vacancy. To retain the youth and vigor of an organization there should be an outlet for the personnel trained as well as an intensive plan of training. An organization that sends men to other organizations when it can no longer promote them need not fear from stagnation of personnel.

The head of such an organization must have a clear conception of the plan of operation, of the interlocking relationships of the various units and of the effect that changes in one unit of his organization will have on the correct working of other or all the remaining units. The operation of such a plan calls for active and healthy leadership, a basic condition that will be discussed later.

2. *Standardized Working Conditions.* The subject of standardized working conditions is one of the most talked of and the least provided for of any of the basic conditions. What is meant by standardized working conditions? That the subject is not generally understood is evident when one views the amazement expressed by able men in the machine tool industry when they see a rack of standardized bolts for the first time. Bolts have been used on machine tools since their very beginning, but it is only recently that we have been able to get machines with standardized bolt slots. How many users have carried the thought to standardized bolts? There should be a bolt of the correct length ready for every job that will be done in the shop. I have found that, in a shop using medium-sized machine tools, a range of bolts in 1 inch steps from 2 inches to 12 inches. in 2 inch steps from 12 inches to 24 inches and in 4 inch steps from 24 inches to 48 inches will provide adequately for a shop doing work of a jobbing nature. Before we leave the subject of bolts there is one more standard condition essential. All of the nuts must run all the way up the thread (usually not longer than the step to the next shorter bolt) and each bolt must have a washer. Apply this thought to all small tools and you have the correct small tool condition for the entire shop. The standardization of each kind of tool is an individual problem that must be studied from every angle of the use of the tool.

At the machine we find an exceptional opportunity for standardizing working conditions. Credit is certainly due the machinery manufacturers for the improvement in manipulation features of their product. The user of the machine has generally not kept in step with the builder. Cleverly worked out devices for saving time are ignored or removed from the machine. On the other hand, the machine builder occasionally must go into another plant to find out how efficiently his machine can be operated.

What is needed around a machine to make it operate effectively? The following should be provided: (1) space for the machine; (2) space for operators; (3) space for material to be processed or already processed; (4) space for tools, attachments, etc., needed in the processing. The apparent lack of observance of these space conditions in our high production plants leads frequently to the discovery, upon investigation, of a very clever concentration of some of these requirements. The worst offender in providing proper working conditions is the plant that is making a varied product. The manager is apt in consequence to tell you his business is different.

Standard conditions of a machine itself are best illustrated by a case illustration. Take, for instance, a vertical side head boring mill. What standard conditions are needed? First of all, all wrenches necessary for operating each tool and work-holding device must be provided. It is frequently assumed that these come with the machine, but surprisingly frequently some are left out. If the machine is not provided with scales showing the amount of movements of the various slides, these should be provided. Tee slots should be provided with wooden strips to close the slots against chips. Chuck jaw bolts should be provided with brass caps that close the counterbore against chips. This permits the ready removal of the chuck jaws for another set without losing time in digging the chips out from around the nut. Slings and hooks are provided for the proper lifting of material. All speed and feed levers are marked with a positive method of indicating the means of obtaining each speed or feed. Many of the present-day machine tools are provided with 20 per cent to 25 per cent speed increment steps. Where direct current, motor-driven machinery is used it is possible to split this increment to a 10 to 12½ per cent step by using a resistance in the field of the motor. When best results are desired from a machine tool the increment should not exceed 15 per cent.

Each machine is a problem in itself and should have intensive study to see that all the details are worked out correctly. Effective performance in the final analysis is a multiplicity of small things correctly done.

3. *Interlocking or Balanced Facilities.* To obtain their most effective use facilities should be balanced within reasonable bounds. While it is true that the presence of a new type of machine of higher productive value among a group of older machines has an influence toward speeding the older machine operations, it is truer that the presence of the older machines retards the possible development of the newer machine. This may sound like an argument against new and more improved equipment. It is not. On the contrary, it is an argument against letting your equipment get too old. In making improvements it is much easier to improve through evolutionary steps than through revolutionary.

A milling machine presents a good example of the balance of facilities referred to here. This machine is capable of removing a certain amount of metal in a given time provided the cutters are on a par with the machine, and are sharp. In a balanced condition, the cutters must be able to do what the machine will do, and means must be provided for regrinding the cutters to their original condition so economically that the operator of the milling machine has no fear of delay because the proper cutter is not ready. Most manufacturers of milling machines have been forced to manufacture cutter grinders in self-defense, and to educate users of milling machines in the correct way of grinding cutters.

4. *Knowledge of the Science of Processing.* To secure the most effective operation of a group of facilities it is evident that something must be known about the science of the particular type of processing at hand. This involves knowing not only how it is done, but how fast it can be done. How many processes today are the result of science and how many are the result of "rule of thumb"? It may be stated generally that the newer processes are more apt to have the scientific approach, while the older ones are more apt to be governed by rule of thumb.

When Taylor discovered high speed steel he proceeded through all phases of the discovery to determine how it could be used and what conditions were necessary for its most effective use. The steel as developed by Taylor has remained almost unchanged to the present day. But how about its use today? Unfortunately there are many people who have never heard of the fourteen variables encountered in cutting metal, and since they have never heard of them, it is safe to assume that they are not all considered in setting a cut. High speed steel is used in cutting much metal that could be cut at the same rate with carbon steel.

There is one curious feature about human nature that renders the adaption of the new tungsten carbide tools easier, and that is, that when we pay a lot of money for something we see to it that we get our money's worth. We rarely check up on our smaller expenditures. The writer is of the opinion that a considerable portion of the cutting gain attributed to tungsten carbide tools could be achieved by high speed steel tools if the science of processing by high speed tools were more broadly studied and known. The writer has tried to obtain information of this nature on tungsten carbide tools but finds it unavailable or unknown. Some day somebody will work it out in a manner similar to Taylor's classic "On the Art of Cutting Metals."

If you know the exact effect of varying the amount of any factor in your process then you can say that you are operating under a known science of processing.

5. *Methods Consciousness.* In developing scientific management in an organization, one of the intangible results sought is the acquisition of a technique of trained habit. Obtaining this trained habit is the result of repeated performance of good method procedure to the point where the good method procedure becomes a habit.

But at this point one also reaches one of the danger zones of scientific management. While I have not heard much comment of this sort lately, there was a time when you could hear on every side that the so-called Taylor System stifled the initiative of the individual. This would be true if the trained habit developed were to be held inflexible for time to come. Good methods, however, are in a constant state of flux, and it requires an alert individual to keep pace with the current development of methods in industry at large. Since this is true, we are in the position of being forced to constantly improve on our trained habit in order to stand still.

Methods consciousness, then, means that an entire organization is in a state of mind that puts it on its toes. It is checking on one hand to see that all its present practices are consistently the best practices, and seeking alertly, on the other hand, to improve these practices. What head of an organization would not like to be able to say, "My methods are the best obtainable, because every man in the organization is constantly trying to improve them." This is purely relative, but everyone can see the force that would be exerted for economical production. Possibly we have all been guilty of that statement at some time in the past, but it has been my experience that the more one finds out about good methods the more inclined one is to feel that the best possible methods are still some distance in advance. To make the problem more interesting, the research laboratories are turning out new products, processes and phenomena at a bewildering rate.

What do we mean when we say "good methods"? A good method is the best known procedure for doing a piece of work consistent with existing facilities. In this connection, we can say that methods consciousness and the best of modern facilities produce the best results. Of the two, I believe methods consciousness is more valuable than new and efficient equipment.

The advertisements of our equipment manufacturers in trade journals are emphasizing the importance of replacing old and obsolete equipment with the new and modern. What many of them do not tell is that into each piece of equipment is designed a method superior to the method of the previous cycle. With the increasing complications of equipment, it has become necessary for manufacturers to undertake the education of the personnel of the purchaser in the method of operation of the equipment. The manufacturer frequently finds this a discouraging task, particularly when the lack of methods consciousness in the plant of the purchaser permits the equipment to be used far below normal effectiveness. On the other hand, the manufacturer is frequently satisfied to impart only the rudiments of information on operation and to leave it to the ingenuity of the people in the organization to find its real possibilities. In the purchase of equipment it is advisable to check up and ask this question, "Have we received a real method of performance, or did we only get the physical mechanism of the method?" One is a live active force, the other only a cold lifeless machine.

To have effective utilization this same question must be asked and answered for every facility involved in the organization. It is in our endeavor to realize effective utilization that we are frequently forced to answer in the negative, and this should be the beginning of corrective measures.

The mechanisms of methods study form a very important step in the development of methods consciousness. As illustrative of the mechanisms, I list: (1) time study; (2) job analysis; (3) routing; (4) equipment data; (5) slide rules, charts, etc.; (6) classifications; (7) instruction or method cards. I have found that the development of methods consciousness proceeds more rapidly with the acquisition by the neophyte of a working knowledge of the mechanisms of methods study; in fact certain stages of methods development are often retained in the training program of methods men solely as a step toward methods consciousness.

6. *Control.* I think we are past the stage where control must be justified. Indeed I have found evidence of departments called Control Departments that were still rather devoid of control functions. Control is essentially the function of matching what should be done with what you do. As a corollary to this statement, if you do not know what can be done it is obvious that you cannot have control. Chasing jobs, orders, parts, etc., through processing is not considered control here. Control should prepare a path down which all the work in process flows in an even stream.

Control, as I am thinking of it, includes a bigger picture than just the flow of material through the processing operations. Control is the co-ordinating function of all the activities of the organization. Certain things should be done, and control sees that they are done. Control then is both a mechanism and a spirit. The mechanism automatically presents certain facts and the spirit of control makes use of these facts. In control, as in methods, it is necessary to develop trained habit to a point where the correct action becomes automatic. In setting up controls, however, the human element in any automatic action must be remembered.

What is it necessary to control? That of course will vary with the existing conditions. In starting it is better to try to control too thoroughly than not thoroughly enough. As real control develops the unnecessary features can be eliminated gradually. It requires considerable experience in control and a knowledge of the inter-related features of the organization before the operation of some function can be changed without disturbing others.

The mechanisms of control are varied in form and use. The exact nature of the mechanism is not so important as is its fitting into a definite plan. The following are usually termed mechanisms of control: (1) control boards; (2) charts; (3) route sheets; (4) control tickets; (5) order of work lists; (6) communication schemes; (7) time clocks and many others. There have been several techniques of control developed all of which have good features. It is much easier to pattern an existing technique to fit a certain set of conditions than to create an entirely new technique.

7. *Supervision.* Supervision is one of the necessary evils of human endeavor. As long as we are dealing with human beings it seems necessary to have some men to see that some more men do what they should do of their own volition. The degree to which a man is trained to perform his function determines the degree of supervision that man will require.

Supervision might be roughly divided into two classes: detailed duties, and general influence. Under detailed duties, we have the thought that the supervisor is responsible for the performance of each facility at its effective capacity, that each man produces in the same manner, that discipline is maintained, that each man conducts himself in a safe and proper manner, that sanitation is observed, that company policies are carried out, and a variety of other possibilities all more or less of a policing nature.

It is when we come to general influence that the real possibilities of supervision are realized. To most men in the ranks the supervisor is the company. He is the man who tells them what the company wants and does not want. His interpretation is what reaches the men; he is the key man. The opportunity for him to use his influence to make bigger men of those working for him is unlimited. As an educator he has an opportunity bigger than that of the pedagogue in the little red school, because he can teach the things useful to know. I am not sure that our present educational system is doing this.

To have effective utilization of facilities, it is evident from this that the supervision of performance must be right. The key men in supervision can make or break some of the best laid production plans.

8. *Definite Product in Definite Quantities.* When one considers the effect of the product itself on effective utilization, the first thought that springs into one's mind is that there must be plenty of product to work on. In other words, the salesman must have done his job—but not overdone it. Too much work may be as bad for effective utilization

as too little. All things being equal, I would rather see a little too much.

By a definite product is meant a completely described product for which there are ample specifications, drawings, etc., showing exactly what should be made, and the tolerance of deviation from the desired condition allowable. Specifically, a good example of incomplete information is a set of drawings for a machine on which the allowances and tolerances are left to the shop. The delays due to misunderstandings and wrong judgments under such a condition amount to quite a figure. The sad part about it is that we frequently consider these delays necessary.

Definite quantity provides a measuring stick for performance. The daily quotas of high production plants are particularly useful in this respect. Where the product is of a more varied nature, the volume of the order provides a definite figure as a task or quota.

9. *Uniform Material Control.* While material control, taken in the qualitative sense, might be considered as a part of control, when viewed from the angle of its effect upon the operation of the facility it becomes an independent condition.

Uncertainty of material quality is the item that slows up the operation of more equipment than almost any other. Take for instance a man operating a turret lathe on a cast iron piece. Where the material is uniformly of one quality he proceeds confidently. But when he strikes a series of castings with sand, blow holes, off center cores and hard spots his confidence is gone and he proceeds more cautiously. He is fearful of being "called" in case something should break. Where there is a wage incentive the incentive may modify his caution, although the general tendency here is to take full advantage of the defective material condition and argue for a higher rate, or a longer task time.

To obtain definite material control, it is necessary to have some means of checking quality as the material is received. Quality should be checked before the material is shipped or it should be purchased from those who are known to give uniform material. Probably modifications of all three systems should be used.

Another and important phase of material control is having the right quantity of material or eliminating unnecessary material. This can only be solved by basic study of each condition.

10. *Payment for Performance.* A piece of equipment can be operated under capacity, at capacity, or over capacity. The method of payment for the work will tend to result in the equipment being operated in one of these three manners.

As a general rule straight day work invariably results in equipment operated under capacity, for the man has very little to gain by running it at capacity. Wage incentives have a tendency to operate the equipment close to its most effective point, but this operation is dependent upon the fairness with which the incentive has been made rather than upon the method of paying the incentive. A close or unfair task will usually result in overburdening the equipment, a high labor turnover or both.

A frequent criticism of piece work is that there is no implied information in the rate established regarding the capacity of the equipment. One cannot blame the operator for getting all he can get, so that whether the rate is close or liberal the equipment probably is worked over capacity. And then again, it may be economical to work the equipment on a one-year replacement basis instead of a five-, ten- or fifteen-year basis.

The important thing to consider in payment for performance is whether the operator can see where he is getting his while the machine is being operated effectively.

11. *Maintenance of Standards.* It should be perfectly obvious that equipment and mechanisms cannot be expected to perform at their rated capacity if certain elements of their construction are permitted to deteriorate. One has only to look into many of our industrial establishments to see the mute evidence of this on all sides.

Maintenance of standards falls into the following classes: (1) maintenance of attitude; (2) maintenance of relativity; (3) maintenance of physical condition.

Maintenance of attitude deals with the mental conditions of the personnel and the steps necessary to prevent an organization from becoming lax, stagnant, sour, quarrelsome, or any of a number of defective attitudes. The laws of this kind of maintenance are as yet vague. We recognize a man as a real human engineer when he is able to keep an organization loyal and aggressive. Our popular magazines are filled with stories of the lives of men who have succeeded as human engineers, but it seems to me that much is still left to "hunch."

In maintenance of relativity, I am referring to the location of vital elements in relation to other vital elements. This relationship occurs particularly in dealing with tasks and time study. For instance, if a time study is made of a man taking pieces of work from a stand three feet high and placing them in the chuck of a turret lathe, a distance of four feet from the platform, whenever this particular time is used the conditions mentioned should be relatively the same. I do not mean that they should not be improved, but when they are improved, a revised time study should of course be taken. The relative standard is not maintained if the man is forced to lift the pieces of work from the floor instead of from the three-foot stand provided when the study was taken. The maintenance of relative conditions is obtained by the formation of trained habit and the exercise of eternal vigilance.

Maintaining the physical condition of the equipment is the most common version of maintenance but I am not thinking of the subject in the ordinary sense. Maintenance, as ordinarily construed, pictures the repairing of something already broken. True maintenance involves the replacing of the part before it breaks. In carrying out a program of true maintenance, the following are involved: (1) the determination of the probable life of wearing parts from experience and inspection, and the establishment of periodic replacement; (2) the provision of a definite lubrication scheme, the performance of which is the first duty of some individual; (3) provision of a definite inspection scheme with a view of determining a repair at the beginning of the formation of a defective growth, and preventing serious material and time losses.

12. *Attitude of Personnel.* What relationship has a man's attitude to the effective operation of some portion of an organization? If a man were a machine, we could say that it has no effect, but he is human, and his attitude therefore cannot help but affect performance. What does work mean to a man? How does he approach it? It means to him just as much as he is interested or not interested in it. Work to a man may be a curse, a punishment, slavery, drudgery, just routine, a livelihood, an occupation, an opportunity to create, or a worship. Interest in work begins when a man takes to work for an occupation and continues to the point where a life work is a worship.

I do not know of any formula for checking the loss that would occur due to having a man operating a facility whose attitude toward his work was one grade lower than the attitude of another man who might be obtained to operate that facility, but I am sure that there would be some difference. Over a space of several grades, the result would certainly be pronounced.

How does one know what a man's attitude toward his work is? Unless you are interested in him, you will never find out. Why is it that an employe always knows more about his superior than the superior knows about the man? Usually this is because the employe makes an effort to find out what is necessary to please his employer or what he can get away with. The duties of supervision are frequently such that a foreman does not spend much time studying his men.

This matter of attitude is an important one if we expect to get the best out of our conditions. It is a part of the very nerve and fibre of the organization, and is reciprocal in its action. Both attitude toward work and attitude toward fellow human beings control effective operation.

13. *Selection of Personnel.* Much of a man's attitude toward his work depends upon whether he is really doing that which he would like to do. A man whose heart is set on becoming a farmer, makes at best only a fair machinist. Does a man always know what he wants to do? He may not, but he can more frequently tell you what he would like best to do. He can tell you what he likes and what he dislikes.

As a nation, we are looking more to the proper selection of our personnel, but we apparently have much to learn along these lines. We are so accustomed to looking around hurriedly and then taking the best that comes around. However, if we practice the basic conditions as listed here, it is not long before it is possible to obtain a better grade of applicants from which to select. Human beings though we are, the average good man likes to work where he knows things are done correctly.

14. *Leadership.* In discussing leadership, we are considering the most important of the basic conditions. There has been no undertaking of group activity that has reached a successful end that has

not had the benefit of leadership. That we recognize that condition is indicated by our customary procedure of electing a head for practically all groups of human endeavor. The mere election of a man to the post of leadership does not endow him with leadership qualities. Usually he must have displayed some indications of being in possession of these qualities.

In a detailed discussion on leadership, a number of qualities could be drawn up that would describe the ideal leader. I shall limit myself to the discussion of a few of the most important. Leadership, to be effective in scientific management, must be: (1) courageous; (2) imaginative; (3) initiative; (4) persistent; (5) healthy; (6) appreciative; (7) educative.

Let me state positively here that the leader must believe in scientific management to make it work. Many fine pieces of organization work have been completed with only mediocre returns because the man at the helm could only use a fraction of the power of the organization. The degree of development of an organization should be consistent with the degree of leadership that is going to operate it. If the leader can continue to grow the development of the organization can continue.

If the leader has a wise imagination he will continually see improvements that can be made in the operation of his organization. Once the improvement has taken definite shape in his plans his initiative will put the plan in motion. His educative presentation to those who will execute the details will put the thought across smoothly; his courage and persistence will see the completion of the thought; and his appreciation will reward those who have aided him in the accomplishment. And if you can conceive of any but a healthy man carrying on under these conditions, I applaud your imagination.

To my mind, two big errors of leadership have been made in the past when seeking to gain effective utilization of facilities. The one consists in thinking that it is not necessary to worry about the details of a job being done correctly, and the other that men of their own accord will fit themselves for the best of their capacity. If ever a problem was one of leadership the problem of the proper education of the personnel is that one. The leader must know through his accounting scheme that the details are being done correctly, for after all is said, effective utilization of facilities is a problem of doing a multiplicity of small things correctly.

Discussion

R. B. Bleecker.[2] I have only a brief comment and question. One thing occurred to me as an additional basic condition and that is the economic trend of the industry in which the organization is located. I realize that Mr. Bryant was confining himself to the field of production. Nevertheless I believe that one must take into consideration the economic security of the particular industry in deciding at what rate facilities should be installed and developed. The results of the best financial and sales policy, for example, will be affected by the condition of the industry as a whole.

A question arises in my mind as to whether "definite product in definite quantities"—and qualities—should not be a subordinate heading under "maintenance of standards," perhaps changing that heading to read "maintenance of physical conditions and operations." The maintenance of standard physical conditions and operations assumes definite quantities and qualities of product.

The only other thing that occurred to me is that in the selection and training of the personnel the technique of the psychologist might well be applied.

Hugo Diemer.[3] Mr. Bryant has stated that it is necessary to "replace the world-old idea of authority by birth, ownership or rank with the concept of authority by fitness and function" before multiple control can be made workable. He rightly stresses the importance of special capabilities for executive jobs. Students and promoters of scientific management have conducted job analyses in the shop and office, and it is generally recognized that the personnel or industrial relations manager should be consulted in setting up standards for higher executive jobs. It is here, however, that we find the greatest amount of incompetence coupled with vanity and class consciousness. To correct this situation it is necessary that management be sold on the importance of framing, recording and codifying policies.

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[2] In charge of Methods Department, National Twist Drill & Tool Co., Detroit, Mich.

[3] Director, Management Courses and Personnel, LaSalle Extension University, Chicago, Ill.

A sound policy of management involves the knowledge and practice of sound management principles. In order that company officials may construct sound policies they must have these principles presented to them in such a way as to command their respect. That respect must be sufficient so that they will not leave the understanding and application of these principles to subordinates, such as the works manager, the production manager and the personnel manager.

The codification of procedures has been accepted as a worth while undertaking for the industrial engineer, the office manager, the cost accountant and the employment manager. The codification of policies should justify or cause a modification of procedures and help to co-ordinate them. To increase the likelihood of appointing competent executives, an employment policy regarding these executives should be definitely approved and recorded. The following is an example of such a codified employment policy:

"While it is the company's policy to give officials, executives and department heads the final authority as to whom they shall employ, it is mandatory that every new employe, no matter how high his rank, be inducted into our service by a personal introduction to the appropriate members of the personnel department, and that prior to being put on the payroll he fill in the regular form of application and furnish the necessary data required by the employment specifications relating to the particular position he is to fill.

"It is the company's policy to furnish the personnel department with specifications as to the requirements for the higher positions to be filled, giving the personnel department sufficient time to make a search for suitable candidates, even if officials or executives have in mind filling these positions with persons of their own selection. The personnel department shall then present any candidates they may be able to find available in competition for this position. These candidates shall be accorded a hearing by the official or executive who is to make the final choice.

"These procedures shall be mandatory. If they are not lived up to there is the likelihood that those arbitrarily appointed will in turn fill their own departments with persons of their own selection on the mere endorsement and recommendation of the superior officer. This naturally would result in the requirements of selection, test and placement so carefully set up by our personnel department being looked upon as mere gestures and applied only in those rare cases where no favorite could be found to fill an opening in the company's force.

"When these specifications are fully met it is the company's policy to give preference to friends and relatives of employes, but the specifications must be furnished and the personnel department must be the final judge as to whether or not they have been met by any candidate."

Some such codified employment policy is necessary if we are to realize Mr. Bryant's fundamental requirement that authority shall be based on fitness and function. In recent years so much stress has been laid on the acquirement of what is called personality that the old-time requirement of thoroughness has almost disappeared. Local personality schools and even deans of scientific and technical schools have taken to advocating the playing of golf and poker and even the marrying of the boss's daughter as a better and easier way of getting to the top than acquiring the capacities for the job. Only a week ago I heard the youthful president of a company which has gone through all kinds of mergers and stock pyramiding state that the major requirement of their executives was personality. He said that capacity on the job could be acquired by anyone with personality. There is likely to be a change of front soon. Thousands of corporations with top-heavy financial superstructures and hordes of young undisciplined officials are up against the distribution problem in a world where the percentage of outlay for salaries and wages is on the decline. Capacity for a job may again be looked upon as of vital importance as well as training to fit for that capacity.

John Younger.[4] I have been greatly interested in Mr. Bryant's paper and think he has ably covered a broad subject. I was a little surprised, however, at one omission. Great emphasis was placed on the standardization and operation of machines, on processes and on tools, but nothing was said about what happened between machines. That, it seems to me, should have been an important part of the paper. The handling of materials between machines is not merely a handling operation. The conveyor is a pace setter and must be considered in working out any forms of control. You can get any type of conveyor. We are of course all familiar with them and they were perhaps considered under "space around machines."

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[4] Professor, Industrial Engineering, Ohio State University, Columbus, Ohio.

Mr. Bryant's discussion of maintenance reminded me that we might borrow a little from the automotive industry. In that industry maintenance is considered as preventive. Things are "prevented" rather than fixed. Steam and fuel lines, for example, are looked after continuously so that emergency repair is unnecessary. Maintenance is the term used to describe this work and service is the term used to cover actual repair work. I think the distinction between the two terms is a good one.

Ralph C. Davis.[5] I want to second Mr. Younger's comment on conveyors and add my own. There is one phase of the utilization of facilities that ties in very directly with what Mr. Younger has just pointed out. That is the rate at which you turn over your capital. In manufacturing this of course means the rate at which you turn over your inventories and working processes. Part of the economy of the conveying system lies in the effect it has in shortening the time of material in process. In a great many cases in industries such as the automotive industry material is received, passes into production and appears in the finished product before the invoice for that material is discounted for cash. The economic utilization of labor is also a factor that must be kept in mind in planning inventories and their commitments. It is not alone the requirements of economical storing and processing that are important in determining how much material shall be started in production. The automotive industry has perhaps gone farther than most in realizing the possibilities of conveyors, but the small job shop as well as the continuous process industry would do well to consider this factor. Too little attention has been paid in many industries to getting the maximum turnover of inventories and working processes.

Stewart M. Lowry.[6] I can perhaps add a bit to Mr. Younger's comment also. When I was associated with the Westinghouse Electric Company I was interested in the subject of materials handling. I was supervisor of materials handling and transportation and in that position wanted to get some information on the proportion of time that physical material was actually in the machine and the proportion of time it spent in transit, in tote boxes beside the machine, in storage, etc. I wanted this data from the time the raw material entered the plant until it entered the warehouse as finished product. We found it was a difficult subject on which to get accurate data but after the production manager and various department managers had worked on it for some time we arrived at a pretty fair estimate. We found that material in that industry is being worked on only from 20 to 25 per cent of the time it is in the plant. During the rest of the time it is either being transported from one operation to another or standing still.

King Hathaway.[7] I am not in accord with Mr. Bryant when he says that methods study includes routing and the various functions of planning and control. I am in accord with him in principle, however, and in fact, when he says that methods study calls for a co-ordination of all the functions of a business, including general policies, sales, design, financing and others. I made the same point in my December meeting paper which has not yet been published.

I think we have reached a point in the matter of planning the flow of work where it would be very well to classify industries. We have on the one hand the industries making one product which has a continuous flow, or straight line, of production. In these industries the inoperative time should make up a very small percentage of the total time of processing. That is the one extreme. The automotive industry perhaps approaches that condition more closely than any other machinery manufacturing line. Between that and the other extreme, of which Mr. Bryant's plant is probably an example, we have the job and the repair shop. Here a machine will be at work on a certain kind of work for perhaps an hour and then change to another type of operation, and so on. There is no continuous flow. The same principle may govern the work of handling in both shops but the mechanisms must be very different. By the techniques of routing, planning and control, we are striving to make conditions in the job shop approach those of the continuous process shop. Where machines are turning out one product continuously you have an almost complete absence of the mechanisms of planning and control. Providing flow of material and maintaining equipment are all that are necessary. If we had a classification of industries we would not have people assuming that the technique which Mr. Bryant describes is being advocated to satisfy the needs of the continuous process industry.

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[5] Head, Department of Industrial Engineering, General Motors Institute of Technology, Flint, Mich.

[6] The Procter & Gamble Co., Cincinnati, Ohio.

[7] Manning, Maxwell & Moore, Inc., New York, N. Y.

The principles are the same, as was brought out in a paper I heard at a local section meeting of the A. S. M. E. in San Francisco. The paper described what was being done in the Hall Scott Motor Company, an organization in the job shop class. They had worked out a very ingenious application of the methods developed in the automotive industry. After carefully routing a job on the basis of time study they would temporarily set up machines for the execution of every part of the job. In other words they established temporary continuous flow conditions for the particular job.

I have been having a rather interesting time recently in my new connection. In one of our divisions reorganization plans had been laid, tools and machines had been standardized, routing improved, the Stevens feed table developed, detailed instruction cards for each step in the work prepared, and so forth. We realized, however, that it would be a year and a half or more before we could hope for a complete application of the ideal methods. And in the meantime along came a sudden influx of work. As a temporary expedient we decided to install the Halsey wage premium plan and did it overnight. Incidentally, a firm of industrial engineers had put in a bid to do the job at a cost of about $30,000 and would have taken about six months to install it. We did it in thirty-six hours. I waited in fear and trembling to hear a report and was most surprised to learn that the result of this temporary expedient was a 30 to 40 per cent increase in production. And in addition it served as the stimulus for a more rapid introduction of the permanent features of tool and machine improvement that were to follow. For example, a man at a drill press had been doing a certain operation in a most inefficient way at frequent intervals for years. In order to counterbore an inch and a half hole he had been using a three-quarter inch drill and counterboring with it, then running the inch and a half drill through, because he had a lead tip to fit the three-quarter inch drill but not the other. He had called this condition to the attention of his foreman until he got weary and gave it up. When he found he could earn a little more money by having the right tool he complained until something was done. The result was that the works manager looked the shop over and found from 150 to 200 lead tips that had never been used, many of which were of the needed size for this operation. This brings out two of Mr. Bryant's points—the one concerning the standardization and improvement of small tools and the other concerning the effects of incentive wage systems.

In another of our plants we had three Bullard Boring Mills. The consensus of opinion had been that these mills should have been scrapped a long time ago, that you could not expect to get any decent work out of them, or any speed. This view was accepted and we were on the verge of spending money for new machines. By putting a man in charge of speeds, the introduction of an element of functional foremanship, however, the production of these old machines was increased by 40 per cent. This has a bearing on Mr. Bryant's discussion of new machines versus old. On another machine the feed and speed combination was increased by something over 100 per cent by the use of properly forge-treated and ground tools.

These things that are essential to profit are being neglected in the shops of successful companies all around us. It was this sort of thing I had in mind when I said this morning that we must in some way awaken American industry to the possibility of progress beyond the point it has reached. The organizations that are represented here today are the progressive ones. For the sake of American industry and American progress in general we must get our knowledge of scientific management across to the organizations who are not represented here today.

George D. Babcock.[8] Two things affect the utilization of equipment. The first is the primary assumption that our product is sufficient in quantity to utilize our equipment economically. Another is the possibility of using completely depreciated machines, with the aid of a little repair work, to serve as the driving force for the operation of new self-contained fixtures. This may be an especially valuable use when the worn machine does not occupy such land or building space as makes this a factor of cost.

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[8] Manufacturing Engineer, Chunn's Cove, Asheville, N. C.

We have worried a great deal about fixed charges because of continued depreciation of reappraised values of machines. Often this has continued for a long time after their true value has been used. But none of the depreciation reserve has been allowed for the replacement of the machine. This I consider bad. Depreciation funds should be utilized for machine replacement and extraordinary repairs. If such funds are in excess of the needs they can be diverted to other uses, but the machines should have the first claim. I cannot help but think, in comparison, of the gasoline tax that the states levy for the maintenance of roads and then divert to political uses. I feel that great stress should be laid on the maintenance of machines in good condition. When this is done consistently we shall not have to worry about old machines. Unfortunately many manufacturers do not do this because they could not operate profitably if full repair maintenance depreciation were taken. Consequently they wreck the machines.

The flow of materials between machines, which has been mentioned by Mr. Younger and others, depends on the length of time per piece and the number of pieces to be produced. The question is whether the usage of a machine for a particular operation is sufficient to pay for the depreciation on that machine and yield a profit. Would another set-up yield a greater profit? If you have a permanent machine set-up and a permanent sequence of operations, then you can use conveyor control to real advantage, but the thing depends on the number of pieces you have to turn out. You cannot reduce production below a certain point and keep going under conveyor control.

In 1907 I was connected with an automobile plant that manufactured seven cars per day and we thought that was some load. In 1915 we had moved up to the larger amount of fifteen. Even this difference meant a complete revolution in our machine and material flow practice. We were forced to obtain the maximum utilization of our equipment with no excess. A very rapid turnover of a great variety of parts for a variety of assemblies was necessary. The problem in a nutshell was to turn out from seven to fifteen cars of three distinct chassis—motor transmissions, axles, steering devices, etc.—and eleven different body styles per day. You know that to do that it would not be possible to utilize any system of conveyors. The great difference in length of separate operations on a piece necessitated the storage of many parts in process throughout the shop.

Shortly after the war I had to do with the manufacture of a caterpillar tractor and strangely enough started in at seven a day on that. But we had a load there that was sufficient to put more than half of our material on progressive lines. And for this reason the machine time of operation on each piece was from five to fifteen times longer than on any piece used in the automobile. The automobile parts were small and light involving few problems of moving. In the case of the tractor the parts were large, heavy and a small quantity required a full machine time. That and the difference in time per operation made it desirable to install a fixed transportation system between operations. Frequently machines retained fixed set-ups.

As soon as the caterpillar tractor program had been studied and simplified so as to give each machine a larger burden per operation the quantity of output increased very rapidly, and the increased quantity decreased cost and sales prices for two reasons. The sales force sold more in order to load the shop and the quicker turnover of inventories released funds to be used for advertising. Another advantage of progressive manufacture is that it permits ready changes in design. It is possible to get new parts under way while old ones are still coming off the line.

An automobile company had a small assembly plant in Toronto where English labor was utilized. In this plant the cars were moved by hand from position to position and materials delivered to their respective positions. In reconstructing the plant a conveyor system was put in for the final assembly. Later one was installed for the body also, and as a result the whole organization was keyed up. Materials were still being moved in lots by trucks, but the whole organization felt a stimulation and ease and schedules were met with a consistency which had hitherto been unknown. The mechanical conveyor is undoubtedly a pace setter if its installation has been preceded by the work of organization and control which should in all cases be the first step.

When I joined the Holt Caterpillar Tractor Manufacturing Company immediately after the war, a sales commercial, manufacturing and engineering organization was to be perfected and procedures to be established. We had a pretty difficult time at first. We started scheduling of materials and parts and started production and final test, and we tried for uniform production several times. The first time we ran five days on an exact schedule of output. The second time we were able to run for a year and on the third attempt we made schedule every calendar day for 685 consecutive days. For nearly two years we were able to run without a single break in the production record simply because we had planned and had finally brought the personnel to realize that it could be done. Once the uniformity was well started every single person in the factory from the gateman down the line would have cried salt tears if we had failed.

There is one other thing that must be considered in weighing the conveyor against the lot system of manufacture. You should appreciate that when you have a progressive system of manufacture you must stop operation as soon as your yard is full of products, and it gets full mighty quick. Reducing hours and slowing down the conveyor can be carried only so far. As I have said before, a certain load is necessary to make it possible to operate under this system. You are presented with an entirely new personnel problem, as the experience of the Detroit automobile plants testifies. When the dealers' shops and the freight trains on the sidings are filled the plant must stop. You must consider this as you go into progressive manufacture.

We should encourage our small manufacturers to study their products and operations with a view to classifying and simplifying them wherever possible and using appropriate manufacturing methods. If they could do this all along the line, even down to the pattern shop where one piece is made and never repeated, I think we should have accomplished something really worth while.

In 1915 I embodied these ideas in a paper presented before a meeting at Lake Placid. That particular paper was the result of studies to find out the effect on lot sizes of time per unit and the number of units to be produced. They are the important factors of a planning program.

Thomas R. Hough.[9] I was much impressed with Mr. Bryant's paper because of its application to certain of my problems. A few years ago our company was making 125 golf clubs a day. I went with this organization from the parent company to install a wage incentive system, but shortly after the superintendent died and I have had his job ever since. I am confronted with much the same sort of problem that Mr. Hathaway described—the problem of turning out a large volume of production while putting in a wage incentive plan and at the same time keeping up the supervision of the maintenance department.

It happens that our golf club and golf ball divisions are standing up strong under the recent depression. About a year ago we were making around 3,000 dozen golf balls a week. I was just asked to arrange with slight increase in equipment for a production of 7,000 dozen per week. To do this it was necessary to operate the molding machines fourteen hours a day, and in the midst of this one of the high-pressure boilers broke down. It was necessary to tear down the brick work and rebuild it on a Sunday in order to be back in production on Monday morning. We have managed with as little capital expenditure as possible by applying all the elements of scientific management that are possible and with a limited personnel. All capital expenditures except those resulting in apparent economies have been avoided. A considerable saving in expense has resulted from the introduction of the better methods.

For example, we have been paying about six cents apiece for the boring on certain types of club heads. A recently made installation is going to enable us to turn out 200 of these clubs an hour, obviously at a very material reduction in cost. The same thing has happened with the club gripping operations. Formerly only skilled operators were used in this department, but as a result of breaking down the operations, mechanization and unskilled operators are now reducing costs. About ten devices have already been installed and more are in preparation. The use of these devices, developed as a result of time studies, has made possible a production increase of 150 per cent and has resulted in better grips.

These improvements and good planning have licked the problems and we are on the road to getting the production desired.

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[9] General Superintendent, Wilson Western Sporting Goods Company, Chicago, Ill.

John Younger. I should like to make another comment. When you are stepping up production rapidly I think there should be some understanding about maintaining rates. I was with a shop that moved up from seven to forty products per day but before they did it a statement was issued to the effect that there would be no cut in piece rates while the process and method remained the same. The notice also said the men would be given the benefit of increased production that resulted from their suggestions for change in method. If the management was responsible for an improved method it reserved the right to cut rates.

Morris L. Cooke.[10] I have just one point I should like to make and that is that it seemed to me that the paper placed undue emphasis on the leadership of the top man. One of the most discouraging things about scientific management is the quickness with which the genius gets tired. I have in mind a plant in which a reasonably good job of scientific management was done, but the thing has been at a standstill for years. Personally, I think we are never going to get the kind of industry we dream of until we carry the idea of leadership all the way to the bottom. When the top men ripen and take up golf and fishing there must be another lot of men coming along who will be filled with the same type of enthusiasm.

The capacity for growth must be given more and more consideration. When I first entered industry the ideal was to get someone who was going to be satisfied with the job he had and never ask for any more wages or anything further to do. If industry is going to realize its possibilities the great top man must be the one who seeks as his comrades at every level in his organization men who are going to pull the people under them and push the people above. That is one of my pet notions.

The point made in the paper about machinery manufacturers' contributions to improvements in processes reminded me of an experience of mine. I have been interested in the accounting problems of hospitals. In a certain hospital with which I am connected the system which had been put in by an old-line firm of accountants had completely broken down. A member of this firm was called in to tell us what was the matter. He discovered that our procedures were very similar to those of a hotel and as a result tried to approximate a hotel accounting system. The National Cash Register Company, which is putting out a tabulating machine particularly adapted to hotel accounting, was consulted. It seemed advisable for us to purchase one of these machines, but before the National Cash Register Company would sell us the machine they sent men into our hospital to watch every one of our operations for two weeks. They finally quoted us a price for a machine that was for the most part standard, but had an attachment added here and one subtracted there to especially adapt it to our needs. And then they refused to sell the machine to us until they were sure it would be possible for one or more of their men to stay in our plant for a month or so to coach the people who were going to use the machine. This seems to me like a splendid way to build up a business and keep the customer satisfied.

In connection with this question of rate cutting you will be interested to know that Mr. Kendall is about to appoint an industrial code committee of which I am to be the chairman. During the war some of the members of this Society developed a code for the Ordnance Department. This was later issued by the Quartermaster's Department also. The A. S. M. E. has drawn up a boiler code which is so good that twenty-six states require that all boilers be built in accordance with it. Mr. Kendall has the idea that we can develop a code for industry in general which will put people on notice against illicit practices, such as rate cutting and other practices.

I think the committee is about to be announced and that it will have something to report by the December meeting of the Society. The plan is first to make a tentative draft, based to a certain extent on the code worked out during the war. I think, for example, that it will be possible in fifty words to make a large part of time study as it is now practiced in this country illicit. It will deal with this practice of changing rates which has been mentioned. When the drafting committee has finished its work I assume there will be a standards committee to keep the thing up to date. I hope the Taylor Society is going to be able to perform a real service in this respect and that we may have your suggestions.

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[10] Consulting Engineer, Philadelphia, Pa.

H. S. Person.[11] I should like to pick up three or four points for emphasis. In the first place it is evident that marked increases in production accompanied by reduced unit costs cannot be attained without the development of methods which give precise control of the factors of production—materials, equipment, conditions, methods.

Likewise, in the second place, a reduction of production, when industrial conditions make it necessary, cannot be attained in an orderly manner without that same control. It is more difficult to back down a precipice than to climb it; in military tactics it is difficult to retreat under pressure without a debacle. It is the same in industry.

In the third place, we have been talking chiefly in terms of large enterprises with some degree of mass production. What of the medium-sized and small enterprise? How will they get something out of this discussion? Surely not by blindly imitating in detail the technique of the large concern. Their procedure is to translate the large-plant technique into principles and then devise techniques adapted to their smaller plants which express the same principles.

Finally, this suggests a word about too exclusive use of the case system in teaching. If the discussion of principles in studying cases is not adequate, the case system may lead to the habit of blind imitation with its attendant dangers.

Ralph C. Davis. The difficulty in the automobile industry is that everyone looks at the assembly line. In the Chevrolet plant, for example, we took care of an overflow production problem in a certain department by the introduction of modern principles of scientific management which enabled us to increase production by about 60 per cent. The procedure bore no resemblance whatever to the methods of control in use on the regular assembly line. Another company that is far from large enough to put in any conveyor system is copying the system of this particular department. There are many methods in the large-scale plants that can be transferred to the small.

John Younger. I want to substantiate that last statement. There is a great deal of flexibility in mass production today and it has a great deal to teach even the small manufacturers. You have to remember that the mass production plants are made up of a number of small plants in most cases. If the small plants will study these individual plants they will learn a lot. It is also possible to adjust hours in these plants instead of shutting down completely. The Ford and Chevrolet plants would have been out of business had this not been possible.

Leslie E. Bryant. In conclusion I should like to say that I have tried to make this paper the story of two installations in repair and job shops. I have tried to set it up so that the mass production, the single process or the job shop could apply the material in it. Most of my experience has been in scientific management shops where two to six pieces were the average run. One piece has often been the order and we rejoice when we get an order of twenty-five pieces. We should declare a holiday if a thousand pieces came along, as it would solve so many problems for us.

The variety of mechanical equipment and of work is quite large. Because of this we have classified our products according to the type of work done on them. A gear, a washer, a bushing, a collar, all have certain identical operations performed on them. This classification therefore gives us a degree of mass production on certain operations.

Changes in jobs are another important factor in the shop doing repair work. In our shop machines like drill presses and small engine lathes change jobs on an average of six to eight times a day. In other words there is a complete tool and machine set-up that number of times a day. Occasionally we get jobs that use the same material for a week at a time, but there is always the set-up problem. The cutting time per piece is really a very small element when the set-up problem has been worked out.

Mr. Bleecker mentioned the importance of considering the general economic trend of an industry. I have considered that a general administrative rather than a production problem. It is part of the general administrative function to coordinate the production, sales and other functions. I therefore did not consider that it came within the scope of this paper.

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[11] Managing Director, Taylor Society, New York, N. Y.

Mr. Younger spoke of the problems of material and product transportation. I have always considered the conveyor one of the mechanisms of control and might have listed it as such. Possibly the reason I did not do so was because I have never used conveyors. To me the principle is the same, however, whether a mechanical conveyor or a move man carries a piece from one operation to the next. I am glad Mr. Younger brought out the distinction between maintenance and service. I have been groping for a term of that sort for quite some time.

The rate of flow, as brought out by Mr. Davis, is I think the same as Mr. Younger's problem. In the mass production industry it is largely a matter of control in the sense of the spirit of control. The mechanism takes care of the rate of flow, provided the spirit of control sees that the mechanism is kept moving.

Mr. Hathaway mentioned the advisability of getting a larger group to attend these meetings. I have been interested to learn of the number of manufacturers who want to send foremen or production managers to see what we are doing at Lancaster. In every case I reply that I shall be glad to have them come *themselves* to observe. My idea is that, while it may do the foreman or production manager a great deal of good to see an installation of scientific management, he will be considerably hampered in applying what he has learned unless the man to whom he has to sell his ideas is sold also. This business of dramatizing scientific management to everyone along the line, from the top down, is very important. The scrap problem is important with us, since the making of linoleum is a continuous process industry. Our general superintendent wishes he could dramatize this situation for our group.

Mr. Babcock's point about using old machines for new attachments is a very practical one. We were about to scrap an engine lathe in our shop when it was found possible to fit it with an automatic welding head which converted it into a very satisfactory automatic welding machine for our purposes. We have made the same sort of adjustments in several other cases.

The consequences of improvement that were brought out by Mr. Cooke are interesting. I might say that in writing this paper I had in mind its application all along the line, from the top man down. Only when the top man is an educator and can get his ideas across to the men all along the line can you get real utilization of facilities. You must bear in mind that all this is relative. One has to run fast to stand still these days, and to get ahead it is necessary to run still faster.

MODERN industrial methods are modifying and changing some of our concepts of industrial economics. It has always been held by economists and employers that low wages were essential to low costs and unfortunately not a few employers still hold this view. Under handicraft methods this thesis was undoubtedly true, but it is far from being true where the investment in productive machinery is large. In fact, in many instances, low costs and high wages are synonymous, where high intelligence or skill are necessary to obtain maximum production from the machinery of production. The wages of the American working-man are relatively the highest that has ever yet been known but the costs of production in all products produced in quantity are in most cases lower relatively and in some cases such as automobiles, sewing-machines, etc., the value per man-hour, as has been noted, is the greatest ever known. Somewhat as a corollary it has been discovered that we are our own best customers and while foreign markets are still of great importance our own people are the largest purchasers of manufactured product as witnessed by the 26,000,000 automobiles owned in this country, a proportion vastly in excess of that of any other country. The old theory which kept costs down through low wages in order that goods might be sold at a profit abroad as illustrated by English practice leaves an impoverished working class at the expense of an enriched employing class. Here is a nice problem for the economist and statesman, namely, to determine how the circulating medium should flow from employer to employee as wages and back again to the employer through purchases. (Dexter S. Kimball in *Toward Civilization,* p. 151.)

Industrial Relations[1]

A 1930 Survey of the Problem

By WHITING WILLIAMS
Author and Labor Relations Consultant, Cleveland, Ohio

IT WAS Nick, the tie-tamper, who gave one of the best statements of the reason why the worker comes to take himself quite seriously in the industrial process.

"Yesterday," Nick answered the stranger's why-fore, "the President of road he come by in special car, and when car come over deesa joint, car go boomp! And President say to Chief Engineer, 'Why dat boomp, huh?' So Chief Engineer say to Superintendent of Division, next chair, 'What about dat boomp?' Superintendent of Division say to his Engineer of Division, 'Better fix dat boomp!' And Engineer of Division, when he come home last night, he say to maintenance of way big boss, 'Why in hell not fix dat boomp, huh?' So maintenance of way big boss call up my boss and say, 'For heaven's sake fix dat boomp quick.' So my boss he come out deesa morning and say, 'Nick, for God's sake fix dat boomp!' Me fix-a da boomp!"

On the other hand the importance of the managerial point of view became plain when, in an oil plant at Bayonne, I met the only human being I have ever wished with all my heart to murder. Everybody in the place had exactly the same desire for exactly the same reason, namely, the way this foreman had of telling us yard laborers to "Pick up that skid!" And then, as we held the skid for further orders, he would yell, "Why do I have to tell you guys what to do with that skid? Don't you know that for the last three days we have done nothin' but push them barrels of oil up into these cars? Why do I have to tell you to take that skid to that car?"

The perfectly good reason was that, a few days before, when a bunch of us newcomers had been told to pick up that skid and had started in the direction of the car we were stopped by this same foreman's "Hey, there! Where you goin'? That skid belongs to the company. I'll tell you what to do with it! You wait for my orders!"

After that, of course, for the rest of time when he told us to pick up the skid we picked it up but, rather than get in bad with him, we would have held it the entire eight hours! But, after all, it was perfectly plain that he was not to blame. He was "hogging" away from us the pleasure of doing our job with any interest or initiative, largely because somebody above him was hogging away from him the satisfaction of being a foreman. And the reason why his superior was thus taking away from him the satisfaction of doing his job was that that superior's superior in turn was hogging away from *him* the desired satisfaction—and so on clear up to the top.

Both those instances, I submit, made it easy to believe my employer in the Hydraulic Steel Company right when he used to say:

"Whenever you see men unhappy in the yard-gang or on the assembly line, take a look at the Board of Directors. If you don't find the trouble there, take a look at the President. If you don't find it there—take another look!"

Just because this is true, it has come about in this good year of 1930 that, in a measure never known before, personnel management and general administration are now recognized as pretty much the same thing—that the handling of men is now accepted not only as a legitimate function of management, but as a function as important, if not even more important in many instances, than the handling of materials and machinery.

As a result of this degree to which even the topmost levels of general management have now come to take seriously this problem of handling men, we can certainly say that in 1930 the level of industrial relations is decidedly higher than ten years ago and vastly higher than fifteen years ago. Without doubt we have less warfare in the shape of strikes, along with enormously more effort by management to get the workers' co-operation through either the local plant council or the national or standard union.

In all this, furthermore, there is today a gratifying volume of educational activity. I believe we do not properly appreciate in this country how we habitually, in industrial education, invest hundreds of millions yearly on nothing but an assumption—the assumption, namely, that if a man can improve his talents, he will hardly fail to find a chance to use them.

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[1] Paper presented before a meeting of the Taylor Society, Columbus, Ohio, May 1, 1930.

Incidentally, this assumption and this practice have vast social as well as vast industrial repercussions. For instance, we have enormously less gambling on the horses than they have in England, simply because we are gambling so much money on ourselves.

"Every day in merry England," my landlady in Wales used to exclaim, "there's a 'orse race some place, except Sunday and, of course, on Sunday the boys are 'ard put to it. But many of them stands on the street corners and gambles on the noomber o' the trams a-coomin' down the street, and I do 'ear that there be those as goes to church and gambles on the noomber o' the 'ymns!"

Besides this immensely important increase of worker education, as also of worker stock ownership, and still more important in a way, is the shorter work-day along with the big increase of paid vacations and pensions and on top of all this, of course, almost universal group insurance. Most outstanding of all perhaps is the general acceptance of what could hardly have been imagined fifteen years ago, namely, the economy of high wages combined with low labor costs.

Certainly in all this we have got far, far away from the old idea that spending a certain amount of money for the friendly interest of the workingman meant nothing except lessening the cost of strikes. If today you see an employer improving his industrial relations simply as a means to the avoidance of trouble, you can be sure he has not yet caught the modern idea of getting the hearty co-operation of his working associates whose wages represent an item certainly as large as any other one expenditure and in many cases larger than all the others combined.

As the result of the closer contacts gained through all these new activities it is possible to note two very gratifying results, significant as starting points for the future.

First, I believe that management is able to say today, out of its experience, that, on the whole, the workingman does not tend to take unfair advantage of decent treatment—that the fears we used to have of the worker who, given an inch, would take a yard have not been realized.

Second, I believe that the worker would agree with the whole American public that today we are lucky, tremendously lucky, to have come in 1930 to what might be called the flowering of the capitalistic era—with this full flowering deserving the name not of the capitalistic but of the *"manageristic* era." For this period is typified by the manager who is himself an employe charged with the responsibility of maintaining an equilibrium between the competing yet inter-related interests of the owners, the workers, the management, the consumers and the public.

Naturally enough the further result of these two gains is that in 1930 as never before we have come to see that all these matters touch not only man's work but his entire life—that they are pertinent not only to our industrial and economic activities, but vitally affect the whole of our entire social and civic life as well. Naturally enough, therefore, the public thus vitally concerned observes with satisfaction that in this year 1930 of the manageristic era, the handling of the human beings in the plant has come to have the serious attention of the topmost levels of managerial interest and responsibility.

Nevertheless, after naming these altogether valuable and significant gains, it seems to me we must also admit that the challenges brought to management today as the result of these very gains are even greater—immensely greater.

The chief difficulty in the present situation is that, while the vice president in charge of operations is far readier today than ten years ago to admit the importance of his plant's human factors, he is nevertheless still inclined to give it a sort of left-handed attention and a left-handed skill. The reason is largely that he has not yet taken the time to get at the roots of his human problem in anything like the manner he expects to utilize in approaching his more material problems.

Recently I was talking with a man who had taken part in getting together President Hoover's report on "Recent Economic Changes." He said it was surprising to look over the filled-in questionnaires received back from the most outstanding of American corporations and to find that, as to their industrial relations, most had simply said, "Yes, we have this plan and we have that plan, and we have put into operation such and such schemes and devices and are, therefore, giving no attention at present to this area of operation."

That is what has always troubled me with the boys in the business schools. They all want you to help them put down in their notebooks just exactly how to handle a human relations problem—how, for instance, to settle a strike or how to solve every difficulty by referring it to this foreman or that shop committee.

Those boys and those managers reporting on our recent economic changes were all suffering from the same hard case of *"formula-itis."* Similarly, most conferences on personnel in industrial management suffer from the tendency to seek easy routine ways out—to deal only with the superficials, the measurables, and to overlook the more fundamental intangibles and principles which make each single given situation of human relations different in certain ways from every other. All of you know certain managements where almost any plan would fail simply because the workers do not believe anything their management tells them—just as there are other plants where almost any plan would succeed simply because the management has been trusted for a generation.

This reliance on formula, I say, indicates that *management is still inclined to believe that industrial relations do not require the same high type of skill and technique, based on study and experience, as is required for solving their more mechanical managerial problems.*

One proof of this is management's overfrequent failure to see that in this field of human reactions account must always be taken of the *total situation.* For instance, I have in mind a company where at the same time that they rushed to avoid a strike by naming worker representatives on the Board of Directors, they failed to put a stop to their foremen's practice of selling jobs! Similarly, other managements fail often to think of the total situation and hence maintain their plant councils while they keep on the payrolls a full crew of undercover men and spies—most of whom, you may be sure, are well known to those who work in their shops.

Another evidence of wrong managerial vision at this point is management's overfrequent failure to understand that by its very nature every relationship between any two human beings is bound to be a relationship in which the only constant factor is change.

Not only is every one of us a different being every day as the result of our current experience—a change of huge significance in itself—but, still further and enormously more complicating, every relationship is full of such relativity as Einstein never knew! Every one of us is so busy trying to maintain a certain status in comparison with the status of others that the moment a change occurs in the status of any member in the chain of relationships some measure of pressure is at once set up for compensating change on behalf of every other member.

Every contractor knows that, the moment he changes the pay of his bricklayers, he automatically must change the pay of all the others throughout the entire list of building crafts and trades. Thus, likewise, the entire railway wage structure was, before the war, stabilized on the proposition that everybody in the maintenance of way should get just so much more or less than the "car-knocker," with the engineer, fireman and others in the operating department getting just so many cents more or less than the brakeman. This brakeman in turn was understood to get exactly five cents less per hour than the car-repairer. Then Mr. McAdoo came along and was persuaded to give the car-knocker five cents *more* than the brakeman. On the instant, trouble started! So much so that it took fully five years of constant warfare before those relativities could again be stabilized and peace restored. Much the same explanation is to be given for the disturbances throughout industry following the war.

Surely it is impossible to imagine any set of values and statuses in a state of more constant flux than these ever-changing relationships between the millions of members of our entire work-a-day organization. And yet, in spite of the fact that every one of those changes tends to affect the entire situation, too many otherwise perfectly intelligent managers continue to assume that, while scientific equipment, skill and experience are needed to work out plans with machines, all that is needed rightly to direct human beings is a certain amount of good-will—good-will and a moment of imagination for applying the Golden Rule.

Too many perfectly good, technically trained managers think the Golden Rule makes all human relations simple. Too many personnel men know the experience of joining an organization and working satisfactorily with, say, the vice president, until some Monday morning they come in to find that this vice president has the idea that he was born with so much good-will that he now knows by hunch the answer to every personnel query. Therefore he has no need of the facts, figures and trends which the personnel man rightly believes important.

Now if, in line with the purpose of the Taylor Society, we are to make sure that just so far as possible our managerial skill helps the whole body of activities known as American industry to contribute the utmost possible to the enrichment of American life, then the first step should be for the upper level of management to make its present interest in personnel count more fundamentally. By better organizing itself to get regularly all the problem's measurables, all its constantly changing measurables, this can be done. It means not simply figures as to turnover and age distribution, but a whole list of such findings as the comparison between the worker's training, responsibility and length of service and his remuneration; between the requirements and opportunities of the various standard jobs and the accompanying wage or salary differentials; between the progress of this group of newcomers and that group, and so on into job measurements and career measurements undreamed of ten years ago.

Next after this step of organizing the measurables comes the duty of establishing the right kind of contacts between the executive group at the top of the organization and all the rest of the personnel. Only in this way can proper attention be gained for that bewilderingly intricate complex of the group's immeasurables and intangibles.

Especially in these days of the merger, an increasing variety of highly dangerous insulations threatens to separate the top line officers from the rest of the employes with the result that the "yes-man" tends to substitute his opinions and prejudices for not only those facts and figures which represent the company's measurables, but also for those various individual viewpoints, interests and desires which represent its fundamental and final human resources. Altogether too often nowadays important decisions are based on the yes-yes of the "prestige-pirate" or the "credit hog." Already too common in many organizations, the number and influence of these tend to increase with the square of the size of the organization.

It is no wonder that in Cleveland two heads of a certain great concern, in order to get full and free discussion from everybody around the table, used regularly to agree that one of them would favor one decision and one of them the other, so that none of their counselors would know which side to take and hence would be forced to state his real opinion.

It follows from the commonness of this executive defect that one of the outstanding developments of the year has been the Chicago Western Electric Company's plan to find out the actual attitudes of their workers toward their foremen. They started a study of the influence of lighting on production and, on the basis of the findings, they decided that the type of supervision—the kind of foremanship—was immensely more important than illumination. The result set them on the way regularly to consider, as one of the most important parts of their whole managerial problem, exactly this matter—this intangible matter—of the worker's attitude toward his superiors.

The making of the proper contacts for studying attitudes is one of the most difficult and skillful of jobs because the military lines of the chart are important. But semi-official contacts are feasible—with the help of the personnel department—just as is the finding of those facts already mentioned as meriting the study of properly trained fact gatherers and fact interpreters. Together these studies of attitude and fact are certain to reveal both the total situation in terms of the organization's varied inter-relationships, and also the state of constant flux and change in these relationships.

Without doubt the whole economic situation in 1930 is such that if ever in history there were need of fundamental thinking with regard to these industrial relationships and attitudes, now is the time. With both cyclical and technological unemployment now common, and with the engineers breaking operations down into constantly smaller tasks, it is more important than ever that management ask afresh the fundamental question: "What is it that men want? Why do men work?"

If money alone is the answer, then management can boldly adopt one certain line of action. But I believe that, without question, what the worker wants out of his job connects somehow with his deeper human wish for some kind of self-value; that somehow or other he wants to feel that what he is doing means something in terms not simply of money in his pocket, but also of his standing as a human being and a citizen.

And if a manager does come to the belief that what a man wants out of his work is enormously more complex than simply so many B.t.u.'s of muscle power in return for so many cents per hour, then the problem of management begins to touch fundamentals. First of all it becomes needful to make sure that this worker be helped to think well of himself as a citizen by being given the utmost possible sense of ownership and property in his job.

Thus this matter of leveling off the peaks of overtime and filling up the troughs of employment constitutes one of the very first ways of helping a man to value himself in the industrial process as the holder of a piece of stabilized and reliable property. If the employers do not aid and abet this wish of the worker to think of his job as fairly steady and dependable, then they must face the likelihood of widespread governmental insurance against unemployment—undesirable though that approach is likely to be in its results.

The so-called job analysis, of course—the study of the job's requirements, its possibilities for growth and for promotion—is another step in the direction of that increased work value which never fails to mean increased *worker* value.

Of increasing every job's value and significance there are many more ways than are generally understood. To be sure, the engineers have taken much of the old craftsman's creative satisfaction and delight out of the modern assembly line. But after all that very line makes all the plainer that significance which comes to the modern job through its close integration with every other job in the whole orchestra of present-day, interdependent industry.

I have been doing some work with a corporation which, a few years ago, represented simply an aggregation of individual craftsmen. This company did not need to care whether its workers knew about the company's far-flung operations or not because none of its employes needed that type of membership satisfaction. Everyone of them took his raw materials and fashioned them into the finished article; his joy was that of a complete creator. But recently those men have had to be taken away from their work as soloists and put on machines. Today they are being helped to get a substitute satisfaction and sense of personal worth in terms of their individual membership in a worthy orchestra.

I am convinced there are untapped and altogether reasonable possibilities along this line simply because I have listened hour after hour to workmen tell of themselves and their standing in the world, always in terms of their job. This was not so much because it was of itself important but because it was part of an important whole—exactly as the fireman says the engineer cannot operate the train "unless he gets his power from *me!*" These men felt perfectly certain that if they had contributed indispensable links to an important chain they need not be at all backward in taking to themselves the power and the glory and the dignity not simply of the link but of the chain!

When the careless observer steps up and says to a laborer, "It's too bad that you must do that task," it is as if he were to make a time study of the drummer of the orchestra in order to offset his soul-soiling work with the proper type of soul-saving leisure. Of course that drummer would say: "I'm the drummer of the Boston orchestra. If you know what the Boston orchestra is then you know what kind of a chap I am!" Just as you can imagine the drummer in the Boston orchestra taking himself more seriously than does the drummer of the Podunk band, so the real measure of a man's valuation of himself depends much upon the worthiness given by the management to the whole organization in terms of the significance and value of its known contribution to the world. Without doubt, the next few years will make immensely plainer the importance of this matter of company function and company character, both to the personnel and all others concerned.

I have in mind a certain great corporation which you would all say, if I were to name it, could rightly be considered an American institution, one whose permanent service and unquestioned reliability are everywhere accepted. Yet right beside it in the same industry is another corporation which remains nothing but an ordinary company, possessing nothing like the attributes of an institution. That represents a tremendous difference in values for all parties at interest, including the stockholders. Yet the difference is made up almost entirely of intangibles. And those intangibles, in turn, are certain, I submit, to consist largely of values felt intensely by the personnel within and recognized widely by the public outside the organization—values derived finally from the worthiness of the organization's function and made by company performance sufficiently recognizable for ennobling every participant in that function's fulfillment.

Even if the manager should be otherwise inclined, I feel sure that society itself is going to require him to make sure that his men find their chief joy, not in their leisure, but in their work. For ages men have besought their Gods to "Establish Thou the work of our hands, yea, the work of our hands establish Thou it." That is not simply a bread and butter prayer; it comes from away down deep within us. I tell you, all the highbrow observers of man's work to the contrary notwithstanding, it is going to take thousands of years before we begin to pray, "Establish Thou the joys of our leisure, yea, the edifications of our leisure, establish Thou them!"

Even the worker tends to make the same mistake as all the rest of us. We see the joy and pride of our own responsibility but miss it in the other fellow and we are all like the professor's scrubwoman. Hearing the woman sigh deeply every time the chapel clock struck the hour he asked her why her work was troubling her. *"Me* a-groanin' about *my* job? I was thinkin' o' them poor stoodents over there a-slavin' o' their lives away." Every one of us, universally, is everlastingly seeking these blessings in our jobs; and if we do not find them there —if industry cannot help men to find them—then I believe the time will come when government will step in and insist upon it.

But, without social pressure from outside, more and more managers, surely, are going to get below the oversimple superficialities and easy-looking formulas and see the necessity and the wisdom of giving more and more attention to the proper motivation of their associated employes. Just as rapidly as materials, machines and methods become more and more standardized, so rapidly does the human factor offer larger opportunity—and larger compulsion, yes, larger financial compulsion—for leadership and statesmanship.

Take, for instance, the railways. All of them are today forced by the Interstate Commerce Commission to charge exactly the same amount per ton-mile. Through dealing with nation-wide labor groups, or otherwise, they come to pay practically the same price per man-hour. Their income and a large part of their outgo are thus controlled by forces outside themselves, with slight, if any, possibility of competing with each other in these sectors. Nevertheless, just because of the different measures of attention given to this matter of worker attitudes, worker satisfactions, and the other intangibles of good team-play, we observe huge differences in both the internal character and the public standing of the various railroad organizations.

Similarly with all modern business groups, in precisely that sector where the company contacts the public by means of the employe, exactly there the management has today to find the most delicate, the most difficult and the most challenging part of its entire responsibility.

The building of an institution from which people can confidently expect ten, twenty, forty years from now, a certain type of useful, reliable response, just as they do from Yale or Harvard, is a job which requires the manager's far, far look. Such a far look is likely to be a fair look. And such a fair look, beside depending upon unquestioned honesty and unfailing justice in its dealings, is sure, I believe, to view the whole problem of the control of men and their energies as a control which works best when based upon the internal, not the external, springs of human action—and better when based on men's hopes than on men's fears. Such a far, fair look will probably also discern that men respond better to the appeal of opportunity than to the appeal of increased security.

The great difference between Europe and America is that abroad the worker has sold his birthright of opportunity for a mess of security. In this country the worker has less security than he should have, but it is earnestly to be hoped, I believe, that such additional security shall not be paid for in terms of worker opportunity.

In conclusion, the great industrial executive leader is going to have, as never before, the job of painting before his men a perfectly clear, well understood and altogether worthy objective for his group. If he does that, then the next step, once his followers understand it, is to make evident to all his desire that these his associates shall have some measure of partnership in that objective's achievement.

In spite of the gratifying progress made these last ten or fifteen years, the responsibility and the opportunity here is nothing less than huge. During my experience as a laborer, it seemed that few if any organizations cared a rap whether I as a worker cared about my work. Altogether too often, certainly, it was assumed that we were doing what we did not because we liked it, or even so much as understood it, but simply because we felt we had to—had to or starve. And all the time, I believe, we workers were all but praying that not less but *more* might be asked of us. To have obtained this surplus from us would have cost nothing but a little more explanation of the action's purpose and value and a little more appreciation of our worth as helpers to that purpose's attainment.

So I like to believe, first, that in the future as never before the manager is going to help his associated workers to find and develop in their work the significance and hence the joy they pray for; second, that thereby this manager is going to release for the benefit of all a maximum of enthusiastic and correlated energies. And finally, that by these means he will help to build great business institutions whose purpose and performance will not fail to represent the melting point of the best interests of all concerned, including that public which is the master of us all.

But such a builder—such a leader—will achieve only insofar as he shares the great adventure with his companions—following such appeal to the brotherhood of work as King Henry the Fifth made to the brotherhood of warfare, when, according to Shakespeare, he addressed his battered English soldiers the night before the Battle of Agincourt in France:

"For he today that sheds his blood with me
Shall be my brother; be he ne'er so vile
This day shall gentle his condition:
And gentlemen in England, now a-bed
Shall think themselves accursd they were not here,
And hold their manhoods cheap whiles any speaks
That fought with us upon Saint Crispin's day.

IMAGINE that a large industrial concern desires to issue new capital stock. The ordinary process is for it to go to its bankers. Bankers talk over the situation, and if they think generally well of the plan, they ask the industrial company to have its financial condition certified to by an impartial disinterested concern of public accountants. Bankers also get, either from those accountants or directly through a firm of industrial engineers, a certificate as to the condition of the plant and the equipment. Those certificates appear in the prospectus of the new securities, and stand to the investing public as a mark of the care taken by the bankers before they lend their names to the flotation of the securities. It also assures the public that the concern did not have capital tied up in unnecessary stores; that its methods of stores keeping were in keeping with economy.

The day is not far distant when the same bankers will demand a third certificate, in connection with any such transaction. The third certificate will testify to the industrial relations existing within the concern. It will be made by industrial counselors, and will certify as to the industrial relations existing in this concern. This concern may have a good bill of health on the first two points, and yet in the next six months they might have a strike on their hands which would make their securities worth nothing . . . . (Robert G. Valentine, Scientific Management and Organized Labor, BULLETIN OF THE TAYLOR SOCIETY, Vol. I, No. 2, January, 1915, p. 4.

Organizing for Change in European Industries[1]

Another Year of Consulting Work in France, Switzerland, Poland and Roumania

By **WALLACE CLARK**
Consulting Management Engineer

ABOUT three years ago at a dinner meeting I told you about the investigation and reorganization of the tobacco and salt monopolies of Poland. That was followed by a year's work for German and Polish industries, producing cellulose pulp, paper, textiles, lumber, iron, steel and machinery.

During the past year and a half my work has been extended to France, Switzerland and Roumania, and when I return I will commute also to England, Czecho-Slovakia and Russia.

In France our first client was an automobile plant—the largest in Europe—with thirty-two thousand workmen in a single factory. This company also produced aeroplane motors, tractors, agricultural machinery and motors for various other purposes. Our second client, in a plant equipped with the most modern chain assemblies and moving belts, made alarm clocks, thirty-five hundred per day. Judging from the quantities exported they must be waking up all Europe and Asia. Near the Belgian border of France we have worked in cotton spinning mills which had been destroyed during the war. Therefore the present buildings and machines are all new. Their reputation for quality is so good that their product is sold months in advance. A printing and publishing plant in Paris which has built up a large business on quick deliveries and quality of work has been a client, as well as coal mines in the extreme northern part of France with eighteen shafts and annual sales of twenty million dollars. The country there still shows many traces of the war.

In Switzerland our client made knitting machines both for manufacturing and household use. It also made screw machine parts, such as automobile tire valves and many other varieties. Its plants are located in Switzerland and just over the borders of France and Germany.

In Roumania we made a condensed survey of the State monopolies of salt and tobacco for the Maniu Peasant Government.

Among the clients in Poland, during the last year, one rolls copper and brass sheets, tubes and wire, with one plant seventy-four years old and another brand new, with rollers capable of turning out copper sheets more than half as large as this room. Another client is the street railway company of a large textile city, including the repairs and maintenance of cars, the extension and upkeep of tracks, and traffic; that is, scheduling the movement of cars and the handling of passengers. Besides these we have a mining and metallurgical plant with four thousand workmen, which does all operations and processes of mining iron ore, blast and open hearth furnaces, a rolling mill, foundry and large machine shop. A merger of plants making cellulose pulp and paper is another client. A plant employing three thousand workmen for building railway passenger and freight cars, tram cars and railway equipment is also on the list.

There is one thing which these foreign clients have in common. That is the realization that conditions have been changing and that organizations, plants and methods must also change. They have found it necessary to change from one kind of business to another. In some cases they have wanted to change from a slow-moving into a swiftly-flowing business; or from a variety of articles to only a few items and the advantages of mass production; in other cases they have wanted to take up entirely new lines in addition to or in place of the old ones.

These are all prosperous firms and most of them are among the foremost in their respective countries. The shop executives are open-minded and eager to secure the benefits of the new methods of management through better quality, increased quantity and reduced cost of production, and above all through an improved turn-over of investment.

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[1] Paper presented before a meeting of the New York Metropolitan Section of the Taylor Society, New York, April 24. 1930.

These companies are equal to the average in this country as to buildings and equipment. The tempo has been slow, however, and they have therefore been unable to do as much as they should with the available money.

In addition to the Gantt methods of planning and scheduling, costkeeping, storeskeeping, the Gantt charts, and the Gilbreth process charts for continuous processes, we have developed methods for executive direction and for the determination of the major policies of the company or groups of industries.

We often go so far as to schedule on Gantt charts our own work of installation; for instance, at the beginning of last year, after we had spent six months with a client, we signed a new contract and at the same time drew up a schedule of our visits throughout the year. The dates for the beginning and completion of each installation in the various shops were set down. Copies were given to the Directors and each week the lines moved across the charts in accordance with the progress made. At the beginning of this year we went over the previous year's charts with the Directors, drew up a new schedule for this year and signed another contract. We find these charts extremely valuable in securing the prompt co-operation of executives in issuing orders and in getting things done quickly.

Of course we have schedules showing where every member of the staff is to spend his weeks, for it is difficult to have their visits properly timed. Each visit to a plant consists of five days, Monday to Friday, during which time we go over the things we have asked to have finished before our arrival and see that they have been properly done. We then introduce the new features, explain them thoroughly and actually begin their use. By the end of the week we have written a report which we discuss with the executives on Friday afternoon. In this we frankly state the situation in each part of our installation, give detailed instructions covering the new methods introduced, together with the reasons why they were needed, and finally, write down the things we expect them to do before our next visit. This report must necessarily be condensed and clear. We find it of great value in securing action on our recommendations.

During the early part of a contract we visit a plant every second week, later every third week, and when things are moving faster, our visits are four weeks apart. A member of the staff usually visits a plant once or twice between my visits.

The staff engineers are native to the countries in which they work and bring to their work a knowledge of the psychology, customs and laws of the country which is valuable in supplementing the methods which we teach them. These men speak English and act as interpreters in the shops and at conferences. A secretary-interpreter also helps in conferences with the executives and writes and translates the weekly reports, which are always presented in two languages.

Apropos of this, I am often asked if I do not find it a handicap not to speak Polish or other languages where I am working. On the contrary, I find that when things have to be translated, only the essential things are said. This eliminates a great waste of talk and time.

Saturdays we spend in our offices in Warsaw, Paris or Prague. This traveling is hard work but interesting. In the large cities the hotels are of course very comfortable but in the smaller towns they are not quite so good. We often joke about the thoroughly standardized luncheons at Armentieres. Those of you who were raised on "The Three Musketeers" will remember the villainess who caused all the trouble and that d'Artagnan and his three friends finally caught her as she was escaping across the river Lys at Armentieres. This river is scarcely as wide as Fifth Avenue.

At Billancourt we eat lunch in the window of a restaurant looking across the street at a handsome butcher shop which hangs out in front of its doors the best quality of horse meat. We always order lamb or chicken.

At Bethune our rooms in the hotel look out on the public square. The facade on the opposite side has been rebuilt since the war and is remarkably beautiful. In the center of the square is the old belfry dating back many centuries. Some organization has been kind enough to present to the city a wonderful set of chimes with a big bell which can be heard for twenty kilometers. These chimes play eight times during every hour, throughout the day and night. On my last visit, the square was filled with a street carnival which drowned out the loud chiming of the clock.

Many of the large plants in Poland are away from the cities and therefore from hotels. These plants have guest houses which are usually quite comfortable. In Starachowice we stay in what was once a typical country house with a large veranda, well kept flower gardens and tennis court. The last time I was there we arrived in a two-horse sleigh, with straw under our feet and big blankets wrapped around us.

In Pabianice we live in a wing of the plant manager's house. There are always three of us on these trips—a staff engineer, a secretary and myself—and we are quite comfortable in three rooms and two baths. We usually arrive about midnight Sunday and in the summer we are invariably welcomed by a nightingale in the gardens. During the season we usually get up in time to go out in the garden and pick enough strawberries or currants for our breakfast, which is served on the piazza.

In Switzerland our hotel and the windows of the office in which we work, look out across the lake to Mont Blanc and the whole southern range. Unusual surroundings, of course, add zest to any type of work.

The owner of the alarm clock business, before building his plant, sent two of his engineers to America. They brought back with them all the moving belts, carriers and other handling devices imaginable. But they lacked the ability to make all this equipment work together. In six months we brought about a 40 per cent increase in production of clocks with no expense for additional machines and a less than 10 per cent increase in labor. In spite of the fact that his men had been admitted freely to shops in America, this owner does not pass on such a privilege to others. No one is allowed to visit his plant; we have to have cards to pass us inside the gates.

In a textile mill the problem was to secure an even flow of material from one operation to another. It was not possible to reduce the kinds of product in order to allow machines to run continually on one kind. Careful planning as to the time in the week when each machine would change, increased the production of the plant by 12 per cent.

In a plant which made plated silverware, some of the buildings were over one hundred years old. In tracing the movement of one of the products, a silver candlestick, we found that in the course of manufacture the material moved four kilometers. By rearranging the equipment and opening a few doors, but without changing any walls in the old buildings, this distance of four kilometers was reduced to 875 meters, which is 22 per cent of the original distance. By way of local color I might add that this candlestick is made in a building which originally was the home of a lovely lady who was the friend of one of the marshals of cavalry under Napoleon.

The rearrangement of plants is, of course, incidental to the more important features of a reorganization.

In a street railway company the operations of stripping or disassembling the car and then rebuilding it were studied. Parts were prepared outside of the car and each operation scheduled. This has resulted in a monthly production of three times as many cars with a reduction of 10 per cent in workmen. Wages have been raised and the workmen have gladly accepted the new methods. The inventories of raw materials and parts have been reduced by 45 per cent. We are now studying the handling of passengers and introducing the service idea into traffic departments.

In a tool-making department, employing about 350 men, the introduction of methods of planning and recording production in comparison with standards resulted in an increase in total production of a little more than 40 per cent.

In a plant which builds railway cars, for the first group of five cars completed after our work was begun the average erecting time was 180 days. On each succeeding lot this time was reduced, because of the introduction of planning methods, until at the end of the first nine months the time had dropped to 110 days. Now, after a year and a half, it has come down to 65 days—a little more than a third of the former erecting time. Reductions in cost of production have also been large, but there is no accurate measure of these savings because the new costs are on a different basis from the old methods. There are, however, records which indicate the savings occasioned by improvements in the erecting operations. Three-quarters of the carpenters' operations have been studied and the average reduction in time has been 25 per cent. In varnishing operations the reduction has averaged 13 per cent. The earnings of skilled workers have been increased through providing them with better tools, teaching them improved methods and eliminating delays. The workmen have taken advantage of these better conditions and have steadily increased their output, so that during the first six months of the year, the average weekly earnings increased 24 per cent. This average covers all producing departments. The erecting shop itself was above that average.

The quality of workmanship on the cars has so far improved that there are practically no delays caused by work not passing inspection. Delivery dates have been set far in advance and these promises consistently met, which has eliminated the payment of penalties for non-delivery of cars within the contract time.

In 1929 the total sales and production were 33 per cent above the previous year. The orders for 1930 are all booked and the production will be 55 per cent greater than in 1928, with a slight decrease in the number of workmen. The increased production per workman therefore amounted to 33 per cent last year and 61 per cent this year.

The investment in labor-saving machinery has been comparatively small, but this year there will be a larger investment in order to realize additional savings. The inventory at the beginning of this year was 5 per cent less than at the beginning of 1929 with the 33 per cent increase in production.

The unusual progress of this plant attracted the attention of an American company which has recently made a contract with the state railways and the car building company to finance the purchases of cars to the extent of forty million dollars during ten years.

One of the changes which is becoming more and more important is the displacement of workers due to the introduction of labor-saving machines or better methods of management. In one country we are recommending that clients issue a statement somewhat as follows before our work begins:

"In these days of ever growing competition, firms in all industries are finding that the only way to meet this competition and maintain their position in industry is to reduce their costs of production. We are no better off in this respect than our competitors, and if we mean to keep our position, or still more to better it, then we also must take every means for increasing our output and reducing our prices.

"This means that unnecessary work must be eliminated and wherever possible better tools and machines must be introduced, so that for the same effort more quantity and a better quality of goods can be produced. This is the only way to reduce costs without reducing wages.

"In the case of other companies the installation of improved methods has often led to a reduction in staff. In our endeavor to use the best outside advice to add to our own accumulated knowledge, we have been happy in securing Mr. Wallace Clark to co-operate with us in the program of improvement which we are about to undertake, and he assures us that reductions in staff are not necessary if proper provision is made in advance.

"It is obviously necessary for us to recover the cost of improvements, but there are nevertheless many ways by which the existing staff may be maintained. For instance: (1) if prices are lowered, so as to pass on to the consumer the advantages of the improved methods, this will often lead to increased sales; (2) or by better advertising it may be possible to expand the market for our goods in readiness to absorb the greater production; (3) sometimes the labor that is not required for expanding quantity can be absorbed in improving quality; (4) or in improving our service to the public; (5) sometimes we shall start a new line.

"In the past there have been times when changes in business conditions have rendered certain products unprofitable. Whole departments have been shut down and the staff dismissed. By better forecasting we hope to avoid the recurrence of such conditions, but in every other case where changes or improvements might seem to lead to a reduction in staff, we are, on Mr. Clark's advice, willing to *undertake by some means or other to reabsorb all the displaced labor, in our works, at full pay.*"

Before the war scientific management dealt principally with problems and conditions which remained fairly constant in any given plant.

Now any methods of management to be effective must be able to meet the constant changes in industry. Organization for change means opening men's minds, not only to meet but to anticipate new forces and to control them. They learn to say that nothing is impossible. They voluntarily give up their traditional attitudes toward conditions and people. Greater than any changes in industrial methods that America is giving to Europe and the rest of the world is this change in men's minds.

A French Workman's Opinion of American Mechanization

A Review[1]

By J. DOUGLAS BROWN
Director, Industrial Relations Section, Princeton University

WE ALL like to have others tell us what they think of the way we do things, especially if their comments are complimentary. Even if a few thorns occur in the bouquet, we do not mind since this proves that the flowers are real. National pride is immediately aroused when a foreigner recounts to us his impressions of our country, our literature, art, music or any other form of cultured expression. We feel timid and uncertain as we listen to criticism of these elements in American life, however, since many Europeans from Dickens on have seemed somewhat frank and wilting. But when our industrial activities are the subject of comment, a warm flood of self-satisfaction fills our being as we sit back to receive enthusiastic compliments.

M. Dubreuil, a French machinist and leading trade unionist, does not disappoint us, at least as long as he tells of impressions obtained within our great industrial plants. With exceptions here and there, it is polite surprise or happy exclamation. Sometimes the reader begins to look for the bitter underneath the sweet, but the bitter is quite diluted. The book appears to have been written more to arouse the French industrialist back home than to evaluate precisely or commend the success of the American manager. For this reason the high lights are touched up a little just as the painter brings out the strong features of the wealthy patron whose portrait is to grace the directors' room.

While M. Dubreuil covers in relatively few pages the bigger problems of our industrial system—such as the business cycle, unemployment, financial insecurity of labor, or the methods of collective negotiation—his experience and contact with these problems during his stay in America were necessarily slight. We must, therefore, seek in his account those impressions which bring light on shop practice or industrial relations in the narrower sphere of day to day activity in the going concern. The plants he selected to visit were in the main highly efficient. While a trade unionist of long standing at home, he seems to have concentrated his attention in this country on factories not recognizing union labor. He studied more the effect of management on men than men on management.

The first shop in which M. Dubreuil worked serves as a drab background to the more vivid colors used later in painting his picture. The job was secured through a parasitic employment agency. In the shop the "rule of thumb" prevailed and in designing a new appliance the foreman did some freehand drafting with chalk on the cement floor. Although several identical appliances were to be built, measurements were carried in the foreman's head and, if lost, were obtained by repeated drafting in the same manner. Work was assigned in an offhand manner at the whim of the foreman. To obtain materials, in one instance, the men were directed to seize upon some stock which was lying about the yard lest some other crew take it. Finding his wages below those of his fellow workmen, Dubreuil asked for an increase, but was stalled off by the time-honored method of the foreman forgetting the matter until too late to make the change that week. The only symbol of efficiency which appeared in this shop was a dust broom four feet wide in the hands of one of the sweepers.

From this depressing spectacle of American inefficiency we are transported to its extreme contrast—Ford's. To get a job in Detroit was not easy, however, since the Ford plant was being overhauled for the new model. Waiting in the long lines in the cold outside the employment office became a new experience and only by assuming the occupation of a die maker and some fictitious experience did Dubreuil get by both the outer and inner offices. After time-consuming preliminaries he was employed.

The impression gained while working at Ford's was one of great efficiency. Dubreuil was struck here, as elsewhere in modern plants, by the great extent to which human physical effort was replaced by mechanical handling. His conclusion was that greater output was not obtained at the expense of greater activity or by rhythm harder to endure compared to that found in French factories. He is less definite in stating his reactions as to the effect of repetitive work on the worker. Although the American title of the book is "Robots or Men?" we find less judgment based on experience and more deduction from psychological precepts when we seek Dubreuil's conclusions on the question, "Do the Ford methods make robots of men?" Throughout, the French regard for philosophical discussion comes to the surface. With a favorable attitude toward the *results* of efficiency, he argues that men will not permit themselves to become robots. He rebels against the indictments of Ruskin and of ill-informed foreign critics.

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[1] Dubreuil, H., *Robots or Men?* New York, Harper & Brothers, 1930.

In Detroit and at other plants, Dubreuil was impressed by the constant change and improvement taking place. Testing, standardization, heavy investment in machine tools, and economy in time and materials loom large in his account. His admiration is centered more on management methods than on labor efficiency, since he feels our workmen are no more skilled than those in the same class abroad. His advice to the French industrialists is to improve management, on the presumption that labor will take care of itself.

A turn at the White Motor plant in Cleveland afforded Dubreuil experience under a task and bonus wage system. He considered the methods of scientific management which he found there a splendid evolution of the Taylor System. The antagonism of a workman unaccustomed to close measurement of work or suspicions of rate cutting tactics does not appear in his report. He is looking for the best in scientific rate determination and finds this at the White plant. Instruction cards do not lessen mental activity, he found, since most of the men soon know their work without them. He is enthusiastic concerning modern adaptations of the Taylor technique which he feels pervades management methods in efficient American plants.

The broader sweeps of Dubreuil's brush are sometimes most interesting even though precision is necessarily lacking. For example, he finds the attitude of the employe toward his superiors much more friendly in America than in France. "The boss" indicates a more wholesome situation than "the monkey." A man is tested here by the formula, "Let's see what you can do," and when employed, takes orders more stolidly. The French superintendent is more conscious of his position and does not appear in shirt sleeves in the factory or drink from the common fountain. On the other hand, there are some inferences of the inadequacy of shop committees as the sole representatives of the employes even though these friendly relations exist. The discussion of this latter point is not sharpened by any illustrations drawn from experience in union shops. We get little judgment as to the effectiveness of the American trade union. The Baltimore and Ohio plan of co-operation was seen in operation only on a visit to the Glenwood shop. It was the technical side which impressed the visitor, not the underlying collective bargaining.

In order to work in America, Dubreuil had to live as an American workman. He found our boarding houses homelike and relatively luxurious. He was amazed at the facilities and equipment of the American workingman's home. One of the most telling criticisms in his whole account was that remarking the boredom of the Man among modern fixtures. A Sunday's visit in a well-furnished home was spent in perfunctorily listening to some music from the assorted devices present and then taking a perfunctory ride with no destination except to come back to the same garage behind the house. It was our use of leisure which left Dubreuil unimpressed. Although he found marvelous libraries, museums and orchestras in this land of plenty, one cannot but believe that he missed the sparkling conversation that he might enjoy at the table, in the garden, or in front of the corner cafe back in France. The American workman as well as his employer is a pragmatist. The Gallic temperament finds much of its inspiration in ideas. America has found the source of wealth and comfort. France, we might agree with Dubreuil, has found the best way to enjoy them.

While more an impressionistic and somewhat rambling account than a precise treatise, "Robots or Men?" affords many valuable suggestions to the American employer or manager. As Dr. Person indicates in the very effective and interesting preface to the book, M. Dubreuil's report will command a place in the small but significant list of economic documents forthcoming from workmen and concerned with industry. The translators of the book, Mr. and Mrs. Merrill, are to be commended for their skill in preserving the rapid flow and conversational style of the French version.

New Time Recording Instruments

I. C. Bertrand Thompson's Improved Stop Watch

Mr. C. Bertrand Thompson, who since the war has been engaged in consulting work in Europe, where he has directed the application of the Taylor System to a wide variety of industries, has made what appears to be an important improvement in time study stop watches.

This consists in providing the usual decimal time study watch as originally developed by Colonel Sanford E. Thompson with a split hand. When the watch is started by pressing the button in the winding stem one half the hand goes ahead while the other half remains stationary. Upon completion of an element or motion in the cycle being observed the button at the side of the stem (used for stopping or starting in the original type of time study watch) is pressed. This causes the stationary hand to jump ahead and stop, indicating the time at which the element was completed. In the meanwhile the moving hand continues to advance. Upon the completion of each successive element the button is pressed advancing the stationary hand from its previous position as from .02 to .06 to .09, etc.

The advantages are that the observer makes his readings from a motionless hand instead of from one in motion and that readings may easily be made in hundredths or quarters thereof. To obtain this advantage it has been necessary to sacrifice the feature of snapping back to zero and starting again with the pressure on the stem as well as being able to stop at any given point and resume therefrom by operating the button or slide at the side of the stem. In the writer's opinion the advantages, in the light of present-day time-study technique in which studies are almost invariably made from a running watch, far outweigh the value of the features sacrificed. This improvement makes far more accurate reading and also facilitates the recording of small elements.

Important and welcome as this improvement will doubtless prove to be there still exists the need to which Taylor called attention for a simplified and inexpensive time-study machine which will make it possible to record successively and accurately a number of elements of .01 minute or less —which it is impossible to do individually with a watch, pencil and paper. The only responses to the hope expressed by Taylor that such a machine might be invented are so far as the writer knows the use of the motion-picture camera as developed by Mr. and Mrs. Gilbreth and the time-study machine which was worked out in an experimental form by Mr. Henry H. Williams. Apart from these and Mr. Thompson's improvement in the stop watch there has been no development in the implements of time study during the past twenty-five years. This is a matter to which the writer feels methods men should give serious thought.

II. Henry H. Williams' Time Recording Machine

The Williams machine is a very simple one. A strip of paper similar to adding machine tape is moved at a uniform rate of speed—about an inch every two seconds—across the surface of the machine. A pen is so attached as to draw a longitudinal line on the paper as it moves along. The machine is provided with two keys. When one of these is pressed the pen moves about a sixteenth of an inch to the side, at right angles to the original line, and continues to move in a straight line from there. This key is pressed at the end of every element in an operation cycle. The second key causes the pen to return to the starting position and is pressed at the end of the operation cycle.

In this way an accurate record of any number of elements and any number of cycles can be made. The sequence of the elements and the time taken for each is secured. By comparing the lengths of line with a measuring scale times can be read to the thousandth part of a minute and entered on the regular time study observation sheet. Short element times recorded in this way will be found to be much more accurate than those secured with stop watches. Since the time study man does not need to look away from the worker he is studying to press the keys he can record in an unhurried manner the exact instant that an element begins and ends. This degree of accuracy is particularly desirable in view of the number of short-time elements that occur in present-day factory work.

Reviews

Technique of Executive Control, The. By Erwin Haskell Schell, McGraw-Hill Book Company, Inc., New York, 1930, pages xii, 171. (Third Edition.)

This is a third revised and enlarged edition of a very valuable little volume. This third edition has added a series of questions in connection with the problems interspersed throughout the text. The author has done this as an aid to analysis by the reader instead of suggesting specific solutions out of his own experience. We recommend it to all executives.